*Barclays Official*

# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

Complete Title

**Vol. 8**

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# BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS

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# TITLE 8. INDUSTRIAL RELATIONS

## NOMENCLATURE CROSS–REFERENCE

(NOTE: Effective April 1, 1990, the Office of Administrative Law authorized the renaming of the hierarchical headings used within the Titles of the *California Code of Regulations*. Until the agencies implement these changes in their regulations, use the following Cross–Reference Table for the new organizational headings used in this Title.)

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|---|---|
| Part | Division |
| Division | Subdivision |
| Chapter | Chapter |
| Subchapter | Subchapter |
| Part | Subchapter |
| Group | Group |
| Article | Article |
| Section | Section |

# Title 8. Industrial Relations

(7-11-2008)

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*Barclays Official*

# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

## Chapter 1. Industrial Medical Council

Vol. 8

THOMSON
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BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS
425 Market Street • Fourth Floor • San Francisco, CA 94105
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# Chapter 1. Industrial Medical Council

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# TITLE 8. INDUSTRIAL RELATIONS

## Division 1. Department of Industrial Relations

## Chapter 1. Industrial Medical Council

### Article 1. General

**§ 1. Definitions.**

As used in these regulations:

(a) "Accreditation" means the conferring of recognized status as a provider of physician education by the Industrial Medical Council.

(b) "Administrative Director" means the administrative director of the Division of Workers' Compensation of the State of California Department of Industrial Relations.

(c) "AME" means Agreed Medical Examiner or Agreed Medical Evaluator, a physician selected by agreement between the employer and the employees to resolve disputed medical issues referred by the parties in a workers' compensation proceeding.

(d) "Appeals Board" means the Workers' Compensation Appeals Board within the State of California Department of Industrial Relations.

(e) "Audit" means a formal evaluation of a continuing education program, disability evaluation report writing course, or an accredited provider which is conducted at the request of the Medical Director.

(f) "Comprehensive Medical-Legal Evaluation" means a medical evaluation performed pursuant to Labor Code Sections 4060, 4061, or 4062 and meeting the requirements of Section 9793 of this Title.

(g) "Claims Administrator" means a self-administered insurer providing security for the payment of compensation required by Divisions 4 and 4.5 of the Labor Code, a self-administered self-insured employer, a group self-insurer, or a third-party claims administrator for a self-insured employer, insurer, legally uninsured employer, group self-insurer, or joint powers authority.

(h) "Continuing Education Program" means a systematic learning experience (such as a course, seminar, or audiovisual or computer learning program) which serves to develop, maintain, or increase the knowledge, skills and professional performance of physicians who serve as Qualified Medical Evaluators in the California workers' compensation system.

(i) "Council" means the Industrial Medical Council as defined in Labor Code Section 139.

(j) "Course" means the 12 hours of instruction in disability evaluation report writing which is required of a Qualified Medical Evaluator prior to appointment. A course must be approved by the Council.

(k) "Credit Hour" means a sixty minute hour. A credit hour may include time for questions and answers related to the presentation.

(l) "Direct medical treatment" means that special phase of the health care provider-patient relationship which-(1) attempts to clinically diagnose and alter or modify the expression of a non-industrial illness, injury or pathological condition; or (2) attempts to cure or relieve the effects of an industrial injury.

(m) "Distance Learning" means an education program in which the instructor and student are in different locations, as in programs based on audio or video tapes, computer programs, or printed educational material.

(n) "DEU" is the Disability Evaluation Unit under the Administrative Director responsible for issuing summary disability ratings.

(o) "Employer" means an uninsured employer and the Uninsured Employers Fund pursuant to Labor Code Section 3716. The UEF shall only be subject to these regulations after proper service has been made on the uninsured employer and the Appeals Board has obtained jurisdiction over the UEF by joinder as a party.

(p) "Evaluator" means "Qualified Medical Evaluator" or "Agreed Medical Evaluator."

(q) "Medical Director" means the Executive Medical Director appointed by the Industrial Medical Council pursuant to Labor Code Section 122, who is Executive Secretary of the Council.

(r) "Provider" means the individual or organization which has been accredited by the Council to offer physician education programs. There are two categories of providers: (1) the Council and (2) individuals, partnerships, or corporations; hospitals; clinics or other patient care facilities; educational institutions; medical or health-related organizations whose membership includes L.C. 3209.3 physicians; organizations of non-medical participants in the California workers' compensation system; and governmental agencies. In the case of a national organization seeking accreditation, the California Chapter or organization affiliated with the national organization shall be accredited by the Council in lieu of the national organization.

(s) "Qualified Injured Worker" means a employee defined pursuant to subdivision (c) of Section 10003 of this Title.

(t) "Qualified Medical Evaluator" (QME) means a physician licensed by the appropriate licensing body for the state of California and appointed by the Council pursuant to Labor Code Section 139.2, provided however, that acupuncturist QMEs shall not perform comprehensive medical-legal evaluations to determine disability.

(u) "QME competency examination" means an examination administered by the Industrial Medical Council for the purpose of demonstrating competence in evaluating medical-legal issues in the workers' compensation system. This examination shall be given at least as often as twice annually.

(v) "Physician's office" means a bona fide office facility which is identified by a street address and any other more specific designation such as a suite or room number and which contains the usual and customary equipment for the evaluation and treatment appropriate to the physician's medical specialty or practice.

(w) "Rebuttal examination" means a comprehensive medical-legal evaluation performed at the request of a party concerning a disputed medical finding or conclusion by a QME concerning an unrepresented employee.

(x) "Significant Financial Interest or Affiliation" means grant or research support; status as a consultant, member of a speakers' bureau, or major stock shareholder; or other financial or material interest for the program faculty member or his or her family.

(y) "Treating physician" means a physician who has provided direct medical treatment to an employee which is reasonably required to cure or relieve the effects of an industrial injury pursuant to section 4600 of the Labor Code.

(z) "Treatment Guideline" means the advisory guideline issued by the Industrial Medical Council which sets out a systematic statement intended to assist health care providers in the California workers' compensation community in making decisions about appropriate medical treatment for specific industrial injuries.

(aa) "Unrepresented employee" means an employee not represented by an attorney.

NOTE: Authority cited: Sections 139, 139.2, 4060, 4061 and 4062, Labor Code. Reference: Sections 139, 139.2, 4060, 4061, 4061.5 and 4062, Labor Code.

HISTORY

1. Repealer and new section filed 8-1-94; operative 8-31-94 (Register 94, No. 31). For prior history, see Register 93, No. 38.
2. Change without regulatory effect amending subsections (c), (g), (h), (k) and (p) filed 9-19-94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 38).
3. Amendment of subsections (d) and (f), repealer and new subsection (m), amendment of subsections (n) and (o), new subsections (p) and (q) and subsection re-

lettering, and amendment of newly designated subsection (r) filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
4. New subsection (s) and subsection relettering filed 6–3–97; operative 7–3–97 (Register 97, No. 23).
5. Amendment of subsections (f) and (r) filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
6. New subsections (a) and (e), repealer of former subsection (f), new subsections (h), (j), (k), (m), (r) and (x) and subsection relettering filed 10–16–2000 as an emergency; operative 1–1–2001 (Register 2000, No. 42). A Certificate of Compliance must be transmitted to OAL by 5–1–2001 or emergency language will be repealed by operation of law on the following day.
7. New subsections (a) and (e), repealer of former subsection (f), new subsections (h), (j), (k), (r) and (x) and subsection relettering refiled 5–2–2001 as an emergency; operative 5–2–2001 (Register 2001, No. 18). A Certificate of Compliance must be transmitted to OAL by 8–30–2001 or emergency language will be repealed by operation of law on the following day.
8. Certificate of Compliance as to 5–2–2001 order, including further amendment of section, transmitted to OAL 7–12–2001 and filed 8–23–2001 (Register 2001, No. 34).

## Article 2. QME Eligibility

### § 10. Appointment of QMEs.

Applications for appointment as a QME shall be submitted on the form in Section 100. The completed application form, and any supporting documentation as required by the application, shall be filed at the Council's headquarters office. Upon its approval of each application form and supporting documentation, the Council shall certify as eligible to sit for the QME competency examination those applicants who meet all of the statutory and regulatory eligibility requirements. Any application for appointment may be rejected if it is incompletely filled out, contains false information or does not contain the required supporting documentation listed in Section 11.

NOTE: Authority cited: Sections 133, 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. Relocation of article 2 heading and new section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Amendment of section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 10.1. The Application for Appointment as Qualified Medical Evaluator Form.

NOTE: Authority cited: Sections 133, 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Change without regulatory effect updating QME Application Form filed 6–27–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 26).
3. Change without regulatory effect amending specialty codes filed 10–11–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 41).
4. Change without regulatory effect amending QME Application form and adding MAP specialty code filed 12–27–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 52).
5. Change without regulatory effect amending MD/DO specialty codes filed 6–19–97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 25).
6. Change without regulatory effect amending MD/DO speciality codes and updating form revision date filed 4–15–98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 16).
7. Change without regulatory effect amending QME appointment application form filed 8–19–98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 34).
8. Change without regulatory effect amending MD/DO specialty codes and updating form revision date filed 7–12–99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 29).
9. Repealer filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 10.1A. Reappointment Application as Qualified Medical Evaluator Form.

HISTORY

1. Change without regulatory effect adding new section filed 6–20–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 25).
2. Change without regulatory effect repealing section and adding new section filed 4–16–98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 16).
3. Change without regulatory effect amending block 2, item 3 and verification statement in block 5 filed 8–12–98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 33).
4. Change without regulatory effect amending block 5 filed 10–30–98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 44).
5. Repealer filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## § 10.2. The QME Fee Assessment Notice Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737–2700 Fax: (650) 737–2989

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128–8888



<date>
Fee Period: <start> – <end>
License Number: <license #>

Dear Dr.<doctor's name>:

Pursuant to Labor Code § 139.2(n) and 8 CCR, § 16, the Industrial Medical Council requires all physicians appointed or reappointed as Qualified Medical Evaluators (QMEs) to pay an annual fee. The QME fee is non–refundable.

$250 FEE

QMEs who have conducted 25 or more comprehensive medical – legal evaluations in the twelve months prior to assessment of the fee. All evaluations performed as a Qualified Medical Evaluator, Agreed Medical Evaluator, and Independent Medical Evaluator must be counted for the purpose of fee assessment (8 CCR §§ 14, 15).

$125 FEE

QMEs who have conducted 11–24 comprehensive medical legal evaluations in the twelve months prior to assessment of the fee. All evaluations performed as a Qualified Medical Evaluator, Agreed Medical Evaluator, and Independent Medical Evaluator must be counted for the purpose of fee assessment (8 CCR §§ 14, 15).

$110 FEE

QMEs who have conducted 0–10 comprehensive medical legal evaluations in the twelve months prior to assessment of the fee. All evaluations performed as a Qualified Medical Evaluator, Agreed Medical Evaluator, and Independent Medical Evaluator must be counted for the purpose of fee assessment (8 CCR §§ 14, 15).

ADDITIONAL LOCATIONS

QMEs who perform evaluations at more than one medical office location are required to pay an additional $100 per location (8 CCR § 15).

Misrepresentation of the number of evaluations performed or the number of additional locations shall constitute grounds for disciplinary proceedings (8 CCR § 60).

Department of Industrial Relations
Industrial Medical Council

Location Fee Calculation Worksheet

<doctor's name>
License Number: <license #>

Street, City, State, Zip Code, Phone No.

[ ]

Enter total Number of All location boxes checked --> _____

THIS SECTION MUST BE COMPLETED BY THE PHYSICIAN.

_____ $250 Primary fee for those physicians who have done 25 or more medical/legal evaluations.

_____ $125 Primary fee for those physicians who have done 11–24 medical/legal evaluations.

_____ $110 Primary fee for those physicians who have done 0–10 medical/legal evaluations.

Based on the amount of primary fee I have paid, I hereby declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Physician's Signature_____ Date_____

For DIR Use Only:

{ } $250 Fee { } $125 Fee { } $110 Fee

_____ Fee for Additional Locations
($100 per location)

Total Paid $_____
Total Locations _____

IMC Form 5 (4/99)

NOTE: Authority cited: Sections 133, 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Repealer and new section filed 6–7–99 as an emergency; operative 6–7–99 (Register 99, No. 24). A Certificate of Compliance must be transmitted to OAL by 10–5–99 or emergency language will be repealed by operation of law on the following day.
3. Repealed by operation of Government Code section 11346.1(g) (Register 2000, No. 3).
4. New section filed 1–19–2000; operative 1–19–2000 pursuant to Government Code section 11343.4(d) (Register 2000, No. 3).

### § 10.5. Limitations on Certification as Qualified Medical Evaluators.

(a) All eligibility requirements contained herein shall be applied without regard to the race, creed, color, gender, religion, or national origin of the individual applying for the public benefit.

(b) Pursuant to Section 411 of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996, (Pub. L. No. 104–193 (PRWORA)), (8 U.S.C. § 1621), and notwithstanding any other provision of this division, aliens who are not qualified aliens, nonimmigrant aliens under the Immigration and Nationality Act (INA) (8 U.S.C. § 1101 et seq.), or aliens paroled into the United States under Section 212(d)(5) of the INA (8 U.S.C. § 1182(d)(5)), for less than one year, are not eligible to receive QME certification as set forth in Labor Code Section 139.2.

(c) A qualified alien is an alien who, at the time he or she applies for, receives, or attempts to receive QME certification is, under Section 431(b) of the PRWORA (8 U.S.C. § 1641(b)), any of the following:

(1) An alien who is lawfully admitted for permanent residence under the INA (8 U.S.C. § 1101 et seq.).

(2) An alien who is granted asylum under Section 208 of the INA (8 U.S.C. § 1158).

(3) A refugee who is admitted to the United States under Section 207 of the INA (8 U.S.C. § 1157).

(4) An alien who is paroled into the United States under Section 212(d)(5) of the INA (8 U.S.C. § 1182(d)(5)) for a period of at least one year.

(5) An alien whose deportation is being withheld under Section 243(h) of the INA (8 U.S.C. § 1253(h)) (as in effect immediately before the effective date of Section 307 of division C of Public Law 104–208) or Section 241(b)(3) of such Act (8 U.S.C. § 1251(b)(3)) (as amended by Section 305(a) of division C of Public Law 104–208).

(6) An alien who is granted conditional entry pursuant to Section 203(a)(7) of the INA as in effect prior to April 1, 1980. (8 U.S.C. § 1153(a)(7)) (See editorial note under 8 U.S.C. § 1101, "Effective Date of 1980 Amendment").

(7) An alien who is a Cuban or Haitian entrant (as defined in Section 501(e) of the Refugee Education Assistance Act of 1980 (8 U.S.C. § 1522 note)).

(8) An alien who meets all of the conditions of subparagraphs (A), (B), (C), and (D) below:

(A) The alien has been battered or subjected to extreme cruelty in the United States by a spouse or parent, or by a member of the spouse's or parent's family residing in the same household as the alien, and the spouse or parent of the alien consented to, or acquiesced in, such battery or cruelty. For purpose of this subsection, the term "battered or subjected to extreme cruelty" includes, but is not limited to being the victim of any act or threatened act of violence including any forceful detention, which results or threatens to result in physical or mental injury. Rape, molestation, incest (if the victim is a minor), or forced prostitution shall be considered as acts of violence.

(B) There is a substantial connection between such battery or cruelty and the need for QME certification in the opinion of the IMC. For purposes of this subsection, the following circumstances demonstrate a substantial connection between the battery or cruelty and the need for QME certification:

(1) QME certification is needed to enable the alien to become self–sufficient following separation from the abuser.

(2) QME certification is needed to enable the alien to escape the abuser and/or the community in which the abuser lives, or to ensure the safety of the alien from the abuser.

(3) QME certification is needed due to a loss of financial support resulting from the alien's separation from the abuser.

(4) QME certification is needed because the battery or cruelty, separation from the abuser, or work absences or lower job performance resulting from the battery or extreme cruelty or from legal proceedings relating thereto (including resulting child support, child custody, and divorce actions) cause the alien to lose his or her job or to earn less or to require the alien to leave his or her job for safety reasons.

(5) QME certification is needed because the alien requires medical attention, health counseling, or has become disabled, as a result of the battery or extreme cruelty.

(6) QME certification is needed because the loss of a dwelling or source of income or fear of the abuser following separation from the abuser jeopardizes the alien's ability to care for his or her children (e.g., inability to house, feed, or clothe children or to put children into daycare for fear of being found by the abuser).

(7) QME certification is needed to alleviate nutritional risk or need resulting from the abuse or following separation from the abuser.

(8) QME certification is needed to provide medical care during a pregnancy resulting from the abuser's sexual assault or abuse of, or relationship with, the alien and/or to care for any resulting children.

(9) Where medical coverage and/or health care services are needed to replace medical coverage or health care services the alien had when living with the abuser.

(C) The alien has a petition that has been approved or has a petition pending which sets forth a prima facie case for:

(1) status as a spouse or child of a United States citizen or legal permanent resident pursuant to clause (ii), (iii), or (iv) of Section 204 (a)(1)(A) of the INA (8 U.S.C. § 1154(a)(1)(A)(ii), (iii) or (iv) and (B)(i)),

(2) classification pursuant to (ii) or (iii) of Section 204(a)(1)(B) of the INA (8 U.S.C. § 1154(a)(1)(B)(ii) or (iii)),

(3) suspension of deportation and adjustment of status pursuant to Section 244(a)(3) of the INA (8 U.S.C. § 1254) as in effect prior to April 1, 1997 [Pub.L. 104–208, § 501 (effective September 30, 1996, pursuant to § 591); Pub.L. 104–208, § 304 (effective April 1, 1997, pursuant to § 309; Pub.L. 105–33, § 5581 (effective pursuant to § 5582)] (incorrectly codified as "cancellation of removal under Section 240A of such Act [8 U.S.C. § 1229b] (as in effect prior to April 1, 1997)."

(4) status as a spouse or child of a United States citizen pursuant to clause (i) or Section 204(a)(1)(A) of the INA (8 U.S.C. § 1157(a)(1)(A)(i)) or classification pursuant to clause (i) of Section 204(a)(1)(B) of the INA (8 U.S.C. § 1154(a)(1)(B)(i)), or

(5) cancellation of removal pursuant to section 240(b)(2) of the INA (8 U.S.C. § 1229b(b)(2)).

(D) For the period for which QME certification is sought, the individual responsible for the battery or cruelty does not reside in the same household or family eligibility unit as the individual subjected to the battery or cruelty.

(9) An alien who, under Section 431(c)(2) of the PRWORA (8 U.S.C. § 1641(c)(2)), meets all of the conditions of subparagraphs (A), (B), (C), (D), and (E) below:

(A) The alien has a child who has been battered or subjected to extreme cruelty in the United States by a spouse or a parent of the alien (without the active participation of the alien in the battery or cruelty), or by a member of the spouse's or parent's family residing in the same household as the alien, and the spouse or parent consented or acquiesced to such battery or cruelty. For purposes of this subsection, the term "battered or subjected to extreme cruelty: includes but is not limited to being the victim o any act or threatened act of violence including any forceful detention, which results or threatens to result in physical or mental injury. Rape, molestation, incest (if the victim is a minor), or forced prostitution shall be considered as acts of violence.

(B) The alien did not actively participate in such battery or cruelty.

(C) There is a substantial connection between such battery or cruelty and the need for QME certification to be provided in the opinion IMC. For purposes of this subsection, the following circumstances demonstrate a substantial connection between the battery or cruelty and the need for the benefits to be provided:

(1) QME certification is needed to enable the alien's child to become self–sufficient following separation from the abuser.

(2) QME certification is needed to enable the alien's child to escape the abuser and/or the community in which the abuser lives, or to ensure the safety of the alien's child from the abuser.

(3) QME certification is needed due to a loss of financial support resulting from the alien's child's separation from the abuser.

(4) QME certification is needed because the battery or cruelty, separation from the abuser, or work absences are lower job performance resulting from the battery or extreme cruelty or from legal proceedings relating thereto (including resulting child support, child support, child custody, and divorce actions) cause the alien's child to lose his or her job or to earn less or to require the alien's child to leave his or her job for safety reasons.

(5) QME certification is needed because the alien's child requires medical attention or mental health counseling, or has become disabled, as a result of the battery or extreme cruelty.

(6) QME certification is needed because the loss of a dwelling or source of income or fear of the abuser following separation from the abuser jeopardizes the alien's child's ability to care for his or her children (e.g., inability to house, feed, or clothe children or to put children into day care for fear of being found by the abuser).

(7) QME certification is needed to alleviate nutritional risk or need resulting from the abuse or following separation from the abuser.

(8) QME certification is needed to provide medical care during a pregnancy resulting from the abuser's sexual assault or abuse of, or relationship with, the alien's child and/or care for any resulting children.

(9) Where medical coverage and/or health care services are needed to replace medical coverage or health care services the alien's child had when living with the abuser.

(D) The alien meets the requirements of subsection (c)(8)(C) above.

(E) For the period for which benefits are sought, the individual responsible for the battery or cruelty does not reside in the same household or family eligibility unit as the individual subjected to the battery or cruelty.

(10) An alien child who meets all of the conditions of subparagraphs (A), (B), and (C) below:

(A) The alien child resides in the same household as a parent who has been battered or subjected to extreme cruelty in the United States by that parent's spouse or by a member of the spouse's family residing in the same household as the parent and the spouse consented or acquiesced to such battery or cruelty. For purposes of this subsection, the term "battered or subjected to extreme cruelty: includes but is not limited to being the victim of any act or threatened act of violence including any forceful detention, which results or threatens to result in physical or mental injury. Rape, molestation, incest (if the victim is a minor), or forced prostitution shall be considered as acts of violence.

(B) There is a substantial connection between such battery or cruelty and the need for QME certification in the opinion of IMC. For purposes of this subsection, the following circumstances demonstrate a substantial connection between the battery or cruelty and the need for the benefits to be provided:

(1) QME certification is needed to enable the alien child's parent to become self-sufficient following separation from the abuser.

(2) QME certification is needed to enable the alien child's parent to escape the abuser and/or the community in which the abuser lives, or to ensure the safety of the alien child's parent from the abuser.

(3) QME certification is needed due to a loss of financial support resulting from the alien child's parent's separation from the abuser.

(4) QME certification is needed because the battery or cruelty, separation from the abuser, or work absences or lower job performance resulting from the battery or extreme cruelty or from legal proceedings relating thereto (including resulting child support, child custody, and divorce actions) cause the alien child's parent to lose his or her job or to earn less or to require the alien child's parent to leave his her job for safety reasons.

(5) QME certification is needed because the alien child's parent requires medical attention or mental health counseling, or has become disabled, as a result or the battery or extreme cruelty.

(6) QME certification is needed because the loss of a dwelling or source of income or fear of the abuser following separation from the abuser jeopardizes the alien child's parent's ability to care for his or her children (e.g., inability to house, feed, or clothe children or to put children into day care for fear of being found by the abuser).

(7) QME certification is needed to alleviate nutritional risk or need resulting from the abuse or following separation from the abuser.

(8) QME certification is needed to provide medical care during a pregnancy resulting from the abuser's sexual assault or abuse of, or relationship with, the alien child's parent and/or to care for any resulting children.

(9) Where medical coverage and/or health care services are needed to replace medical coverage or health care services the alien child's parent had when living with the abuser.

(C) The alien child meets the requirements of subsection (c)(8)(C) above.

(d) For purposes of this section, "nonimmigrant" is defined the same as in Section 101(a)(15) of the INA (8 U.S.C. § 1101(a)(15)).

(e) For purposes of establishing eligibility for certification as a QME pursuant to Labor Code Section 139.2, all of the following must be met:

(1) The applicant must declare himself or herself to be a citizen of the United States or a qualified alien under subsection (c), a nonimmigrant alien under subsection (d), or an alien paroled into the United States for less than one year under Section 212(d)(5) of the INA (8 U.S.C. § 1182(d)(5)). The applicant shall declare that status through use of the "Statement of Citizenship, Alienage, and Immigration Status for QME Certification," Form 101.

(2) The applicant must present documents of a type acceptable to the Immigration and Naturalization Service (INS) which serve as reasonable evidence of the applicant's declared status. A fee receipt from the INS for replacement of a lost, stolen, or unreadable INS document is reasonable evidence of the alien's declared status.

(3) The applicant must complete and sign Form 101 and submit the from to the IMC with any other required information under Article 2 and Article 5 of this division.

(4) Where the documents presented do not on their face appear to be genuine or to relate to the individual presenting them, the government entity that originally issued the documents shall be contacted for verification. With regard to naturalized citizens and derivative citizens presenting certificates of citizenship and aliens, the INS is the appropriate government entity to contact for verification. The IMC shall request verification from the INS by filing INS Form G-845 with copies of the pertinent documents provided by the applicant with the local INS office. If the applicant has lost his or her original documents or presents expired documents or is unable to present any documentation evidencing his or her immigration status, the applicant shall be referred to the local INS office to obtain documentation.

(5) The type of documentation referred to the INS for verification pursuant to INS Form G-845 shall include the following:

(A) The document presented indicates immigration status but does not include an alien registration or alien admission number.

(B) The document is suspected to be counterfeit or to have been altered.

(C) The document includes an alien registration number in the A60 000 000 (not yet issued) or A80 000 000 (illegal border crossing) series.

(D) The document is one of the following: an INS Form, I-181b notification letter issued in connection with an INS Form I-181 Memorandum of Creation of Records of Permanent Residence, and Arrival-Departure Record (INS Form I-94) or an foreign passport stamped "PROCESSED FOR I-551, TEMPORARY EVIDENCE OF LAWFUL PERMANENT RESIDENCE" that INS issued more than one year before the date of application for QME certification.

(6) If the INS advises that the applicant has citizenship status or immigration status which makes him or her a qualified alien, a nonimmigrant or alien paroled for less than one year under Section 212(d)(5) of the INA, the INS verification shall be accepted. If the INS advises that it cannot

verify that the applicant has citizenship status or an immigration status that makes him or her a qualified alien, a nonimmigrant or an alien paroled for less than one year under Section 212(d)(5) of the INA, QME certification shall be denied and the applicant notified pursuant to the Administrative Procedure Act (Gov't Code § 11370 et seq. of his or her right to appeal the denial of his or her certification.

(f) Pursuant to Section 434 of PRWORA (8 U.S.C. § 1644), where the Industrial Medical Council reasonably believes that an alien is unlawfully in the State based on the failure of the alien to provide reasonable evidence of the alien's declared status, after an opportunity to do so, said alien shall be reported to the Immigration and Naturalization Service.

(g) Eligibility for QME certification is established where subsections (e)(1)–(3) are satisfied. Any alien who provides documentation specified under subsection (e)(5) shall be eligible for QME certification until and unless the Industrial Medical Council receives written confirmation from the Immigration and Naturalization Service that the alien is not eligible for QME certification.

(h) Nothing in this section shall be construed to withdraw eligibility for QME certification if any of the conditions in U.S.C. § 1621(b) are present.

(i) Any applicant who was made eligible for QME certification whose services are terminated, suspended, or reduced pursuant to subsections (b) and (e), is entitled to a hearing under Section 61 of these regulations.

NOTE: Authority cited: Sections 139 and 139.2. Reference: 8 U.S.C. Sections 1621, 1641 and 1642; Sections 139.2, 5307.3 and 5307.4, Labor Code; and Section 11507 et seq., Government Code.

HISTORY

1. New section filed 11–5–98; operative 12–5–98 (Register 98, No. 45).
2. Change without regulatory effect repealing and adding new Form 10.5, Rev. 5/99 (incorporated by reference) filed 7–12–99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 29).
3. Amendment of subsections (e)(1), (e)(3) and (i) and repealer of subsections (i)(1)–(6) filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## § 11. Eligibility Requirements for Initial Appointment as a QME.

The Council shall appoint as QMEs all applicants who meet the requirements set forth in Labor Code Section 139.2(b) and all applicants:

(a) Shall submit the required supporting documentation:

(1) Copy of current license to practice in California;

(2) For Medical Doctors, or Doctors of Osteopathy:

(A) A copy of the applicant's certificate of completion of postgraduate specialty training at an institution recognized by the Accreditation Council for Graduate Medical Education or the osteopathic equivalent as defined pursuant to Section 12, or;

(B) A copy of the applicant's Board certification by a specialty board recognized by the Council or as defined pursuant to Section 12, or;

(C) A declaration under penalty of perjury accompanied by supporting documentation that the physician has qualifications that the Council and the Medical Board of California or the Osteopathic Medical Board of California both deem to be equivalent to board certification in a specialty.

(3) If a psychologist, (i) a copy of a doctoral degree in psychology or a doctoral degree deemed equivalent for licensure by the Board of Psychology pursuant to Section 2914 of the Business and Professions Code, and has not had less than five years postdoctoral experience in the treatment of emotional and mental disorders or (ii) served as an AME on eight or more occasions prior to January 1, 1990 and has not less than five years postdoctoral experience in the diagnosis and treatment of emotional and mental disorders.

(4) For Doctors of Chiropractic, the physician shall provide (1) a copy of a current or otherwise valid certificate in California Workers Compensation Evaluation by either a California professional chiropractic association or an accredited California college recognized by the Council (i.e. Workers' Compensation Evaluation Certificate with a minimum 44 hours completed or; (2) a certificate of completion of a chiropractic postgraduate specialty program of at least 300 hours taught by a school or college recognized by the Council, the Board of Chiropractic Examiners and the Council on Chiropractic Education.

(5) Or, for other physicians, a copy of the physician's professional diploma.

(b) Prior to appointment as a QME, each applicant shall complete a course of at least 12 hours in disability evaluation report writing pursuant to Section 11.5 of this Article. Doctors of Chiropractic who submit documentation showing compliance with section 11(a)(4) are exempt from this requirement.

(c)(1) Shall provide supplemental information and/or documentation to the Council after an application form is submitted if requested to verify an applicant's eligibility for appointment.

(2) Shall declare that he or she has not performed a QME Evaluation without QME Certification. The Council, after hearing pursuant to Section 61 may deny appointment to any applicant who has performed a QME Evaluation without QME Certification prior to appointment.

(d) Shall agree that during a QME exam he or she will not treat or offer or solicit to provide medical treatment for that injury for which he or she has done a QME evaluation for an injured worker unless a medical emergency arises as defined under subdivision (a) or (b) of Section 1317.1 of the Health and Safety Code. A QME may also provide treatment if requested by the employee pursuant to section 4600 of the Labor Code, but he or she shall not offer or solicit to provide it. A QME who solicits an injured employee to receive direct medical treatment or to become the primary treating physician of that employee shall be subject to disciplinary action pursuant to Section 60.

(e) Shall declare under penalty of perjury on the QME application he or she:

(1) has an unrestricted license or is currently on probation from the state licensing board and;

(2) devotes at least one–third of their total practice time to providing direct medical treatment during each year of the applicant's term of appointment. This requirement shall not apply if the applicant has served as an AME on 8 or more occasions in the year prior to application and each year of the applicant's term; or if the applicant meets the requirements of section 15.

(f) Shall pass the QME Competency Examination.

(1) In order to take this examination, a physician who is not currently appointed as a QME and not exempt pursuant to Labor Code §139(b)(1), shall be considered to have applied to take the QME competency examination upon submitting the properly–completed Application for Appointment Form in Section 100, and the Registration Form for the QME Competency Examination in Section 102 and the appropriate fee as specified in Section 11(f)(2).

(2) The fee for applying to take or retake the QME competency examination is $125.00 and may be waived by the Council at its discretion for first time applicants.

(3) The Medical Director shall give appropriate public notice of the date, time and location of the examination no fewer than 60 calendar days before a competency examination is to be given.

(4) An applicant must submit the properly completed forms as required in Section 11(f)(1) to the Medical Director at least 30 calendar days prior to the date of the next scheduled competency examination unless the Medical Director finds good cause to grant an extension to the physician(s).

(5) The Medical Director shall inform the applicant in writing whether he or she shall be allowed to take the examination within 15 calendar days from the date the Council receives the properly–completed forms and appropriate fee.

(6) The Medical Director shall inform the applicant in writing whether or not he or she passed the examination within 60 calendar days from the date the applicant takes the competency examination.

(7) An applicant who passes the QME competency examination shall file the QME Fee Assessment Form in Section 103 including the appropriate fee within 30 days of the date of the notice. The physician shall not

be appointed to the official QME list until the appropriate fee is paid and has completed a disability evaluation report writing course pursuant to Section 11.5. Appointments shall be for two-year terms beginning with the date of appointment by the Council.

(8) Any applicant who fails to follow test instructions and/or proctor instructions either before or during or at the conclusion of an examination shall be disqualified from the examination procedure and the applicant's exam shall be nullified.

(9) If an applicant fails the competency examination or fails to appear for a noticed QME examination for which the applicant has submitted a QME Exam Registration Form 102, the applicant may apply to take any subsequent examinations, upon submission of a new test application form and a fee of $125. An applicant who fails the exam three times shall show proof of having completed six (6) hours continuing education from a course approved by the Council prior to taking the examination again.

(10) Any applicant who receives a failing grade on a competency exam may appeal the failing grade to the Council. Appeals shall be considered on a case by case basis. Appeals will be accepted immediately after a candidate has completed the examination and until 10 days after the date of the examination results letter. The appeal shall state specific facts as to why the failing grade should be overturned. Pursuant to Section 6254(g) of the Government Code, the Council will consider appeals of test questions in closed session with counsel and will base its decision solely on the written appeal including any supporting documentation submitted by the physician. Appeals will only be accepted for the current examination period. Grounds for appeal are:

(A) Significant procedural error in the examination process;

(B) Unfair Discrimination;

(C) Bias or fraud.

(g) Each applicant shall pay the annual fee required by section 17 of this Article prior to appointment.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Section 139.2, Labor Code; and Section 6254, Government Code..

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. New subsections (a)-(c) and subsection relettering, amendment of newly designated subsections (d)-(f)(6), new subsections (f)(7) and (f)(8) and subsection renumbering, amendment of newly designated subsections (f)(9) and (f)(10), and new subsection (g) filed 8-23-96; operative 9-22-96 (Register 96, No. 34).
3. Change without regulatory effect amending section (f)(5) filed 6-20-97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 25).
4. Amendment filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).
5. Amendment of section heading and section filed 8-23-2001; operative 8-23-2001 pursuant to Government Code section 11343.4 (Register 2001, No. 34).

## § 11.1. Application for QME Competency Examination Form.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Section 139.2, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Change without regulatory effect amending form filed 3-11-96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 11).
3. Change without regulatory effect amending form filed 7-23-96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 30).
4. Amendment of form filed 3-15-99; operative 4-14-99 (Register 99, No. 12).
5. Repealer filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

## § 11.5. Disability Evaluation Report Writing Course.

Prior to appointment as a QME, a physician shall complete a course of at least twelve hours of instruction in disability evaluation report writing. The course curriculum shall be specified by the Council.

(a) To apply to the Council for accreditation, a provider shall submit:

(1) a completed IMC Form 118 which contains

(A) the applicant's name; address; director of education with contact information; type of organization; length of time in business; nature of business; and past experience providing continuing education courses (including a list of other accrediting agencies that have approved such courses);

(B) a description of the proposed education program or course which includes the title; type (continuing education program or disability evaluation report writing course); location(s); date(s); length of training in clock hours; educational objectives; a complete description of the program or course content; faculty; and the names of other accrediting agencies that have approved the program.

(2) A curriculum vitae for each proposed instructor. A proposed instructor shall have education and/or training and recent work experience relevant to the subject of his/her presentation.

(3) To apply to the Council for accreditation, an applicant shall submit the application to the Council, at least 60 calendar days before any public advertisement of the applicant's course.

(b) The Council shall accredit an applicant that meets the definition of provider in Section 1(r); submits a completed, signed and dated application which demonstrates past experience in providing continuing education programs; and proposes a program which meets the requirements of 55(c) or a course which meets the requirements of 11.5(a) and (i). The applicant must demonstrate that adequate time is allocated to the curriculum set forth in section 11(5)(i) for the course to be approved by the Council. Proposed content for continuing education program credit must relate directly to disability evaluation or California workers' compensation-related medical dispute evaluation. No credit shall be recognized by the IMC for material primarily discussing the business aspects of workers' compensation medical practice, including but not limited to billing, coding and marketing.

(c) The Council shall notify the applicant within 20 calendar days following the next scheduled Council meeting after receipt of the application containing all the information listed in Section 11.5(a) whether that provider has been accredited for a two year period and the proposed course has been approved. Incomplete applications will be returned to the provider.

(d) A provider that has been accredited by the Council will be given a number which must be displayed on course promotional material.

(e) On or before the date the course is first presented, the provider shall submit the program syllabus (all program handouts) to the Council.

(f) An approved course may be offered for two (2) years. A provider shall notify the Council in writing of any change to the faculty in an approved course. The provider shall send the Council the program outline, promotional material and faculty for each offering of the program at least 45 days prior to the date of the presentation of the program. The Council may require submission of the program syllabi. The Council may require changes in the program based on its review of the program outline, program syllabi, promotional material or faculty if the IMC finds that any aspect of the program is not in compliance with these regulations.

(g) To apply for re-accreditation, a provider must submit a completed IMC Form 118, using the application process in 11.5(a). The provider may complete section 2 of the form using a new program or course or one which was given by the provider during the recent accreditation period. The Council shall give the provider 90 days' notice of the need to seek re-accreditation.

(h) Promotional materials for a course must state the provider's educational objectives; the professional qualifications of course faculty (at the least, all relevant professional degrees); the content of course activities; and the intended audience.

(i) The minimum of 12 hours of instruction in disability evaluation report writing shall include:

(1) The Qualified Medical Evaluator's Role in the Disability Evaluation Process (minimum recommended 1 hour)

How disability evaluation reports are used

The reasons why reports must be clear, complete and timely

The QME's role as an expert witness

Impact of the QME's report on the injured worker

QME ethics and the Confidentiality of Medical Information Act

(2) Elements of the Medical–Legal Report (minimum recommended 1 hour)

The Labor Code and regulatory requirements for medical–legal reports.

(3) The Language of Reports (minimum recommended 4 hours)

Evaluation of disability in California (impairment and disability)

The occupational history

The physician examination and the role of testing

Labor Code requirements to use Packard Thurber's Evaluation of Industrial Disability Factors of disability

Subjective

Objective

Work restrictions

Loss of pre–injury capacity

Causation

Determination of permanent and stationary status

Vocational rehabilitation

Apportionment

Future medical treatment

Review of records

Providing sufficient support for conclusions

(4) The Council's Disability Evaluation Protocols (minimum recommended 1 hour)

An overview of the protocols and an in–depth discussion of one or more of the Neuromusculoskeletal, Pulmonary, Cardiac, Immunologic, or Psychiatric protocols.

(5) The Third Party Perspective (minimum recommended 1 hour)

The report from the perspective of those who read it:

Judge(s), attorney(ies), insurer(s), rater(s), employer(s), qualified rehabilitation representative(s).

(6) Anatomy of a Good Report (small group or other interactive sessions — minimum recommended 3 hours)

Discussion of examples of good reports and identification of weaknesses in reports

Opportunities for the practitioner to critique and/or correct reports.

If feasible, physician should have the opportunity to write a sample report.

Review of results of IMC annual report review and identification of common problems with reports

(7) Mechanics of Report Writing (minimum recommended 1 hour)

The QME Process

Face to face time

Timelines for submission of report

Completion of required forms

Service of reports

Final questions and answers

(j) No more than four hours of the required twelve hours of instruction may be taken by distance learning. All audio or video tapes, computer programs and printed educational material used in the course must be submitted to the Council on or before the date the course is first given. All distance learning materials shall bear a date of release and shall be updated yearly. The provider shall notify the Council in writing of the revision.

(k) No one shall recruit members or promote commercial products or services in the instruction room immediately before, during, or immediately after the presentation of a course. Providers or vendors may display/sell educational materials related to workers' compensation or applications for membership in an area adjoining a course. A course provider or faculty member shall disclose on IMC form 119 any significant financial interest in or affiliation with any commercial product or service which is discussed in a course and that interest or affiliation must be disclosed to all attendees. A provider shall file every form 119 in its possession with the Council.

(l) The provider shall maintain attendance records for each disability evaluation report writing course for a period of no less than three years after the course is given. A physician attending the course must be identified by signature. The provider must submit a copy of the signature list to the Council within 60 days of completion of the course.

(m) The provider is required to give the IMC's Evaluation Form 117 to course attendees and request they submit the form to the IMC. This information shall not be used in lieu of a certification of completion given by the provider, as specified pursuant to section (n). Destruction by a provider or its employee of a QME's Evaluation Form or failure by such provider or its employee to distribute Form 117 as part of its course shall constitute grounds for revocation of a provider's accredited status. The Council shall tabulate the responses and return a summary to the provider within 90 days of completion of the course.

(n) The provider shall issue a certificate of completion to the physician which states the name of the provider, the provider's number, the date(s) and location and title of the course. To be eligible for appointment as a QME, a physician must complete no less than 12 hours of the curriculum specified in Section 11.5(i) and must submit a copy of that certificate to the Council.

(o) Joint sponsorship of courses (as between an accredited and an unaccredited provider) must be approved by the Council prior to presentation of the course.

(p) The Council may audit a provider's course(s) at the request of the medical director to determine if the provider meets the criteria for accreditation. The Council may audit courses given by providers randomly, when a complaint is received, or on the basis of responses on IMC Form 117. An auditor shall not receive QME credit for auditing a course. The Council shall make written results of the audit available to the provider no more than 30 days after the audit is completed.

(q) Accredited providers that cease to offer disability evaluation report writing courses shall notify the Council in writing no later than 60 days prior to the discontinuing an approved course.

(r) The Council may withdraw accreditation of a provider or deny such a provider's application for accreditation on the following grounds (in addition to failure to meet the relevant requirements of subsections 11.5(a):

(1) Conviction of a felony or any offense substantially related to the activities of the provider.

(2) Any material misrepresentation of fact made by the provider.

(3) Failure to comply with Council regulations

(4) False or misleading advertising

(5) Failure to comply with Council recommendations following an audit

(6) Failure to distribute Council form 117 cards to course attendees.

NOTE: Authority cited: Sections 139, 139.2, 4060, 4061 and 4062, Labor Code. Reference: Sections 139, 139.2, 4060, 4061, 4061.5 and 4062, Labor Code.

HISTORY

1. New section filed 10–16–2000 as an emergency; operative 1–1–2001 (Register 2000, No. 42). A Certificate of Compliance must be transmitted to OAL by 5–1–2001 or emergency language will be repealed by operation of law on the following day.
2. New section refiled 5–2–2001 as an emergency; operative 5–2–2001 (Register 2001, No. 18). A Certificate of Compliance must be transmitted to OAL by 8–30–2001 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 5–2–2001 order, including further amendment of section, transmitted to OAL 7–12–2001 and filed 8–23–2001 (Register 2001, No. 34).

## § 12. Recognition of Specialty Boards.

The Council shall recognize all specialty boards accredited by the American Board of Medical Specialties (ABMS), the American Osteopathic Association, the American Board of Professional Psychology, Inc. and those boards either accredited or considered equivalent to ABMS recognized boards by the Medical Board, the Osteopathic Medical Board and the Board of Psychology of State of California. The Council shall recognize chiropractic diplomate boards whose programs are taught by the Council on Chiropractic Education accredited colleges.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2(b)(2)(A), 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Amendment of section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).

### § 13. Physician's Specialty.

A physician's specialty(ies) is one for which the physician is board certified or, has completed a postgraduate specialty training as defined in Section 11(a)(2)(A), or held an appointment as a QME in that specialty on June 30, 2000, pursuant to Labor Code Section 139.2, having provided to the Council documentation from the relevant board of certification or qualification or has provided documentation which meets the requirements of Section 11.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2(b)(2)(A), 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Amendment of section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
4. Amendment filed 8–23–2001; operative 8–23–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 34).

### § 13.5. Chiropractic Certification in Workers' Compensation Evaluation.

NOTE: The "Physicians Guide" does not appear as a part of this regulation. Copies are available through the Executive Medical Director of the Industrial Medical Council; P.O. Box 8888 San Francisco, CA 94128–8888.

NOTE: Authority cited: Sections 139, 139.2 and 139.3, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Change without regulatory effect amending subsection (a) filed 12–2–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 49).
3. Amendment filed 3–15–99; operative 4–14–99 (Register 99, No. 12).
4. Renumbering of former section 13.5 to section 14 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 13.7. Appointment of Retired or Teaching Physicians.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Amendment of opening paragraph and subsections (c)(2) and (c)(3) and new subsection (e) filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Renumbering of former section 13.7 to section 15 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 14. Doctors of Chiropractic: Certification in Workers' Compensation Evaluation.

(a) All doctors of chiropractic, in lieu of board certification, shall be certified in workers' compensation evaluation by either a California professional chiropractic association, or an accredited California college recognized by the Council. The certification program shall include instruction in disability evaluation report writing that meets the standards set forth in Section 11.5.

(b) California professional chiropractic associations or accredited California colleges applying to be recognized by the Council for the purpose of providing these required courses to chiropractors in California workers' compensation evaluation, shall meet the following criteria:

(1) The provider's courses shall be administered and taught by a California professional chiropractic association or a California chiropractic college accredited by the Council on Chiropractic Education. Instructors shall be licensed or certified in their profession or if a member of a non–regulated profession have at least two years experience in their area of instruction regarding workers' compensation issues.

(2) The provider's method of instruction and testing shall include all of the following:

(A) lecture, didactic sessions and group discussion including an initial 8 hours of overview of the workers' compensation system and 36 additional hours in medical–legal issues for total minimum class time of 44 hours. Up to 4 hours of the instruction covering the regulations affecting QMEs and/or writing ratable reports may be satisfied by distance learning. The initial 8 hours of overview are transferable to any other approved program provider for credit;

(B) passing a written test at the completion of the program to determine proficiency and application of course material;

(C) writing a narrative conclusion to medical–legal issues in response to facts presented or a narrative report, in appropriate format, which would meet the standards of a ratable report;

(3) The initial 8 hours of the course material shall cover the following information:

(A) overview of California Labor Code, DWC (Division of Workers' Compensation of the California Department of Industrial Relations) and Council regulations governing medical–legal reports and evaluations;

(B) obligations of the treating and evaluating physicians;

(C) review of appropriate workers' compensation terminology;

(4) The remaining 36 hours shall include but not be limited to the following:

(A) history and examination procedure requirements, including all relevant IMC guidelines;

(B) work capacity guidelines and disability ratings;

(C) apportionment;

(D) vocational rehabilitation;

(E) continued or future medical care.

(5) The provider's course material and tests shall be submitted to the Council for annual review and the Council shall monitor a provider's course as necessary to determine if the provider meets the criteria for recognition.

(6) The provider's course advertising shall clearly state whether or not the course is recognized to satisfy the requirement for chiropractic California workers' compensation evaluation by the Council.

(c) Course Material shall also cover at a minimum, the material within the text of the "Physicians Guide to Medical Practice in the California Workers' Compensation system (Current Edition)."

NOTE: The "Physicians Guide" does not appear as a part of this regulation. Copies are available through the Executive Medical Director of the Industrial Medical Council; P. O. Box 8888, San Francisco, CA 94128–8888.

NOTE: Authority cited: Sections 139, 139.2 and 139.3, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 4–9–93 as an emergency; operative 4–9–93 (Register 93, No. 15). A Certificate of Compliance must be transmitted to OAL 8–9–93 or emergency language will be repealed by operation of law on the following day.
2. Editorial correction amending subsections (a)(1) and (b) and NOTE (Register 93, No. 17).
3. New section refiled 9–16–93 with amendment of subsections (a)(1)–(b) as an emergency; operative 9–16–93 (Register 93, No. 38). A Certificate of Compliance must be transmitted to OAL by 1–14–94 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 9–16–93 order including amendment of subsections (b) and (c) transmitted to OAL 10–28–93 and filed 12–14–93 (Register 93, No. 51).
5. Relocation of article 2 filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
6. Amendment of subsections (a)(1) and (a)(2), repealer of subsections (b)–(b)(2) and subsection relettering, and amendment of newly designated subsections (b) and (c) filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
7. Amendment filed 6–7–99 as an emergency; operative 6–7–99 (Register 99, No. 24). A Certificate of Compliance must be transmitted to OAL by 10–5–99 or emergency language will be repealed by operation of law on the following day.
8. Reinstatement of section as it existed prior to 6–7–99 emergency amendment by operation of Government Code section 11346.1(f) (Register 2000, No. 3).
9. Amendment filed 1–19–2000; operative 1–19–2000 pursuant to Government Code section 11343.4(d) (Register 2000, No. 3).
10. Renumbering of former section 14 to section 16 filed 4–14–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 15).
11. Renumbering and amendment of former section 13.5 to section 14 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
12. Amendment of subsections (a), (b), (b)(4) and (b)(6) and redesignation and amendment of former subsection (b)(7) as new subsection (c) filed 8–23–2001; operative 8–23–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 34).

### § 15. Appointment of Retired or Teaching Physicians.

In order to be considered for appointment as a QME pursuant to Labor Code Section 139.2(c), a physician shall submit written documentation to the Council that he or she meets either (a), (b) or (c) of this section. A physician applying for appointment pursuant to this section shall also pass the QME competency examination.

The physician shall:

(a) Be a current salaried faculty member at an accredited university or college, have a current license to practice as a physician and have been engaged in teaching, lecturing, published writing or medical research at that university or college in the area of his or her specialty for not less than one-third of his or her professional time. The physician's practice in the three consecutive years immediately preceding the time of application shall not have been devoted solely to the forensic evaluation of disability.

(b) Be retired from full-time practice, retaining a current license to practice as a physician with his or her licensing board; and

(1) Has a minimum of 25 years' experience in his or her practice as a physician; and

(2) Has had a minimum of 10 years' experience in workers' compensation medical issues; and

(3) Is currently practicing fewer than 10 hours per week on direct medical treatment as a physician, and;

(4) Whose practice in the three consecutive years immediately preceding the time of application was not devoted solely to the forensic evaluation of disability.

(c) Be retired from active practice due to a documented medical or physical disability as defined pursuant to Gov't Code § 12926 and currently practicing in his or her specialty fewer than 10 hours per week. The physician shall have 10 years experience in workers' compensation medical issues as a physician. The physician's practice in the three consecutive years immediately preceding the time of application shall not have been devoted solely to the forensic evaluation of disability.

(d) A physician appointed under Section 11 or this section shall, notify the Council of changes in his or her status and shall complete the requirements for continuing education pursuant to section 55 prior to reappointment.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 4-9-93 as an emergency; operative 4-9-93 (Register 93, No. 15). A Certificate of Compliance must be transmitted to OAL 8-9-93 or emergency language will be repealed by operation of law on the following day.
2. Editorial correction amending subsection (b) and NOTE (Register 93, No. 17).
3. New section refiled 9-16-93 with amendment of subsections (a)(1)-(b) as an emergency; operative 9-16-93 (Register 93, No. 38). A Certificate of Compliance must be transmitted to OAL by 1-14-94 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 9-16-93 order including amendment of subsection (b) transmitted to OAL 10-28-93 and filed 12-14-93 (Register 93, No. 51).
5. Amendment filed 6-7-99 as an emergency; operative 6-7-99 (Register 99, No. 24). A Certificate of Compliance must be transmitted to OAL by 10-5-99 or emergency language will be repealed by operation of law on the following day.
6. Reinstatement of section as it existed prior to 6-7-99 emergency amendment by operation of Government Code section 11346.1(f) (Register 2000, No. 3).
7. Amendment filed 1-19-2000; operative 1-19-2000 pursuant to Government Code section 11343.4(d) (Register 2000, No. 3).
8. Renumbering of former section 15 to section 17 filed 4-14-2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 15).
9. Renumbering and amendment former section 13.7 to section 15 filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 16. Determination of Fees for QME Eligibility.

(a) For purposes of establishing the annual fee for any qualified medical evaluator pursuant to Article 2, physicians (as defined under Section 3209.3 of the Labor Code) shall be classified into one of three categories:

(1) QMEs who meet all applicable requirements under Article 2 and 5 and who have conducted 0-10 comprehensive medical-legal evaluations in the twelve months prior to the assessment of the fee. Comprehensive medical-legal evaluations are evaluations as defined under Section (1)(d) of this Chapter performed by a physician.

(2) QMEs who meet all applicable requirements under Article 2 and 5 and who have conducted 11-24 comprehensive medical-legal evaluations in the twelve months prior to assessment of the fee. Comprehensive medical-legal evaluations are evaluations as defined under Section (1)(d) of this Chapter performed by a physician.

(3) QMEs who meet all applicable requirements under Article 2 and 5 and who have conducted 25 or more comprehensive medical-legal evaluations in the twelve months prior to assessment of the fee. Comprehensive medical-legal evaluations are evaluations as defined under Section (1)(d) of this Chapter performed by a physician.

(b) The evaluations shall be conducted in compliance with all applicable statutes and regulations.

(c) Verification of the number of examinations shall be made by the Council using The Findings Summary Form in Section 36.1. Misrepresentation of the number of evaluations performed for purposes of establishing a physician's QME fee shall constitute grounds for disciplinary proceedings under Section 60 of this chapter.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139, 139.1 and 139.2, Labor Code.

HISTORY

1. New section filed 4-9-93 as an emergency; operative 4-9-93 (Register 93, No. 15). A Certificate of Compliance must be transmitted to OAL 8-9-93 or emergency language will be repealed by operation of law on the following day.
2. Editorial correction amending NOTE (Register 93, No. 17).
3. New section refiled 9-16-93 with amendment of subsection (a) as an emergency; operative 9-16-93 (Register 93, No. 38). A Certificate of Compliance must be transmitted to OAL by 1-14-94 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 9-16-93 order including amendments transmitted to OAL 10-28-93 and filed 12-14-93 (Register 93, No. 51).
5. Amendment of section filed 8-23-96; operative 9-22-96 (Register 96, No. 34).
6. Amendment filed 6-7-99 as an emergency; operative 6-7-99 (Register 99, No. 24). A Certificate of Compliance must be transmitted to OAL by 10-5-99 or emergency language will be repealed by operation of law on the following day.
7. Reinstatement of section as it existed prior to 6-7-99 emergency amendment by operation of Government Code section 11346.1(f) (Register 2000, No. 3).
8. Amendment filed 1-19-2000; operative 1-19-2000 pursuant to Government Code section 11343.4(d) (Register 2000, No. 3).
9. Renumbering of former section 16 to section 18 and renumbering of former section 14 to number 16 filed 4-14-2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 15).

### § 17. Fee Schedule for QME.

(a) All physicians seeking QME status shall be required to pay to the Industrial Medicine Fund within the Industrial Medical Council, the following fee:

(1) QMEs performing 0-10 comprehensive medical-legal evaluations, $110 during each of the years or any part of a year the physician retains his or her eligibility on the approved QME list.

(2) QMEs performing 11-24 comprehensive medical-legal evaluations, $125 during each of the years or part of a year the physician retains his or her eligibility on the approved QME list.

(3) QMEs performing 25 or more comprehensive medical-legal evaluations, $250 during each of the years or any part of a year the physician retains his or her eligibility on the approved QME list.

(b) Individual QMEs who perform comprehensive medical-legal evaluations at more than one medical office location within the state which is identified by a street address and any other more specific designation such as a suite or room number and which contains the usual and customary equipment for the evaluations and treatment appropriate to the medical specialty or practice shall be required to pay an additional $100 annually per additional office location. This requirement applies to all QMEs regardless of whether the QME is a sole practitioner, or corporation, or partnership pursuant to Corporations Code Chapter 1 (sections 15001-15045) Chapter 2 (sections 15501-15533) and/or Chapter 3 (sections 15611-15723).

(c) The IMC may waive or return the statutory fee in the amount of $110 for the completion of a survey of QMEs to validate the QME competency examination. The term "completion of the survey" means the return of the survey to the testing agency designated by the IMC on or before the date for the return of the survey.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139, 139.1 and 139.2, Labor Code.

HISTORY

1. New section filed 4–9–93 as an emergency; operative 4–9–93 (Register 93, No. 15). A Certificate of Compliance must be transmitted to OAL 8–9–93 or emergency language will be repealed by operation of law on the following day.
2. Editorial correction amending NOTE (Register 93, No. 17).
3. New section refiled 9–16–93 with amendments as an emergency; operative 9–16–93 (Register 93, No. 38). A Certificate of Compliance must be transmitted to OAL by 1–14–94 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 9–16–93 order including amendments transmitted to OAL 10–28–93 and filed 12–14–93 (Register 93, No. 51).
5. Renumbering former section 17 to new section 19 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
6. Renumbering of former section 15 to section 17 filed 4–14–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 15).
7. New subsection (c) and amendment of NOTE filed 2–14–2002 as an emergency; operative 2–14–2002 (Register 2002, No. 7). A Certificate of Compliance must be transmitted to OAL by 6–14–2002 or emergency language will be repealed by operation of law on the following day.

### § 18. QME Fee Due Dates.

(a) All physicians, regardless of the number of comprehensive medical–legal evaluations performed under Section 17 shall pay the required QME fees at yearly intervals within 30 days of receipt of notice from the Council that the QME fee for the next 12 months is due and payable. No physician who has passed the competency examination shall be placed on the active QME roster until the appropriate fee under section 15 has been paid.

(b) Any QME who fails to pay the required statutory fee within 30 days of receipt of a final notice that the fee is due shall be notified that he or she shall be terminated from the official QME roster of physicians within 30 days and shall not perform any panel QME or represented QME comprehensive medical–legal evaluation until the fee is paid. If the fee is not paid within two years from the due date in the QMEs final notice from the Council that the fee is due, then the physician shall resubmit a new application pursuant to Sections 10 and 11, pass the QME competency examination and pay the appropriate fee prior to regaining QME eligibility.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139 and 139.2, Labor Code.

HISTORY

1. New section filed 4–9–93 as an emergency; operative 4–9–93 (Register 93, No. 15). A Certificate of Compliance must be transmitted to OAL 8–9–93 or emergency language will be repealed by operation of law on the following day.
2. Editorial correction amending subsections (b) and (b)(1) and NOTE (Register 93, No. 17).
3. New section refiled 9–16–93 with amendment of section heading and text as an emergency; operative 9–16–93 (Register 93, No. 38). A Certificate of Compliance must be transmitted to OAL by 1–14–94 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 9–16–93 order including amendments transmitted to OAL 10–28–93 and filed 12–14–93 (Register 93, No. 51).
5. Repealer filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
6. Renumbering of former section 16 to section 18 filed 4–14–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 15).

### § 19. Certificate of QME Status.

(a) Upon receipt of the QME fees and review by the council to ensure current compliance with section 139.2 of Labor Code and any other applicable regulations promulgated by the council concerning QME eligibility, the council shall within 45 days send to the physician a certificate of approved status as Qualified Medical Evaluator. The certificate of QME status shall be displayed in a conspicuous manner at the QME's office location at all times during the period the QME is approved by the council to conduct evaluations under council appointment.

(b) It shall be unlawful for any physician who has been terminated or suspended from the QME list or who has failed to pay the required QME fee pursuant to sections 17 and 18 to display a certificate of approved status as a Qualified Medical Evaluator.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139 and 139.2, Labor Code.

HISTORY

1. Renumbering and amendment of former section 17 to new section 19 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## Article 2.5. Time Periods for Processing Applications for QME Status

### § 20. Time Periods.

(a) Within 45 days of receipt of an application for QME status, the Council shall either inform the applicant, in writing, that the application is complete and accepted for filing, or that the application is deficient and what specific information is required.

(b) Within 45 days of receipt of a completed application, the Council shall inform the applicant, in writing, of its decision to allow or not to allow the applicant to proceed to take the required QME competency examination as per Section 11(c) of these regulations.

(c) Within 45 days of receipt of a completed application, the Council must inform the applicant, in writing, of its decision to grant or deny the application.

[The next page is 2.9.]

(d) Based upon the two years immediately preceding October 1, 1993, the Council's minimum time for processing an application for QME status is 14 days. The median time is 60 days. The maximum time is 2 years.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code; and Section 15376, Government Code. Reference: Sections 4060, 4061 and 4062, Labor Code; and Section 15376, Government Code.

HISTORY

1. New article 2.5 and section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).

## Article 3. Assignment of Qualified Medical Evaluators, Evaluation Procedure

### § 30. QME Panel Requests.

(a) Requests for a QME panel made by an unrepresented employee pursuant to Labor Code Sections 4061 and 4062 shall be submitted on the form in Section 106.

(b) In the event a request form is incomplete, or improperly completed so that a QME panel selection cannot properly be made, the request form shall be returned to the employee with an explanation why the selection could not be made.

(c) The Request for Qualified Medical Evaluator Form along with the instruction form in Section 105 entitled "How to Request a Qualified Medical Evaluator" shall be provided by the claims administrator (or, if there is no claims administrator, the employer) to the unrepresented employee by personal delivery to the employee or by first class or certified mailing.

(d)(1) For admitted injuries between January 1, 1991 and December 31, 1993, a panel request form and notice in a form prescribed by the Administrative Director pursuant to Article 8 of Chapter 4.5 of this Title shall be provided to an unrepresented employee where the employee, the claims administrator or, if none, the employer alleges a medical conclusion that the employee is no longer entitled to temporary disability indemnity and permanent disability cannot be determined or is or is not payable. The QME shall address all medical issues raised by the parties, including but not limited to the employee's permanent and stationary status, the extent and scope of medical treatment, the employee's status as a Qualified Injured Worker or the existence of new and further disability in order to produce a complete comprehensive medical–legal evaluation.

(2) For admitted injuries occurring on or after January 1, 1994 a panel request form and the Administrative Director's notice pursuant to Article 8 of Chapter 4.5 of this Title shall be provided to an unrepresented employee where a party disputes a medical conclusion by the primary treating physician. If the issues are other than the level of permanent impairment and limitations or the need for medical care, the objecting party shall, absent good cause as determined by the Appeals Board, notify the other party of the nature of the objection within 30 days of receipt of the report from the primary treating physician. The objecting party shall submit a written copy of the objection to the QME along with any medical records submitted pursuant to the requirements of Section 35. After the QME evaluation is complete, either the employee or the employer may object to any new or unresolved issue. The parties shall utilize the same QME to the extent possible. Where the issue is outside the QME's scope of practice pursuant to the QMEs licensing authority, the parties may select another QME pursuant to subdivision (a) of Section 4064 of the Labor Code.

(e) If the request form is submitted by an unrepresented employee who no longer resides within the state of California, the geographic area of the QME panel selection within the state shall be determined by agreement between the claims administrator or, if none, the employer, and the employee. If no agreement can be reached, the geographic area of the QME panel selection shall be determined by the employee's former residence within the state.

NOTE: Authority cited: Sections 139, 139.2, 4061 and 4062, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY

1. New article 3 and section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Amendment of subsection (b) and new subsections (d)–(e) filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Amendment of subsections (a), (c) and (d)(1) filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 30.1. The Request for Qualified Medical Evaluator Form.

NOTE: Authority cited: Sections 133, 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Change without regulatory effect amending specialty codes filed 6–27–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 26).
3. Editorial correction adding HISTORY 3 and including previously filed amendments (Register 95, No. 41).
4. Change without regulatory effect amending specialty code MPT, repealing specialty codes DDS and DMD and adding specialty code DEN filed 10–11–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 41).
5. Change without regulatory effect adding MAP specialty code filed 12–27–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 52).
6. Change without regulatory effect amending form filed 6–20–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 25).
7. Change without regulatory effect amending form filed 2–25–97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 9).
8. Change without regulatory effect amending MD/DO specialty codes filed 6–19–97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 25).
9. Change without regulatory effect amending MD/DO speciality codes and updating form revision date filed 4–15–98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 16).
10. Change without regulatory effect amending MD/DO specialty codes and updating form revision date filed 7–12–99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 29).
11. Repealer filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 30.2. The Request for Qualified Medical Evaluator Instruction Form:

NOTE: Authority cited: Sections 4061 and 4062, Labor Code. Reference: Sections 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Change without regulatory effect amending thrid paragraph filed 2–25–97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 9).
3. Repealer filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 30.5. Specialist Designation.

The Medical Director shall utilize in the selection process the specialist(s) indicated on the Request for Qualified Medical Evaluator Form 105.

NOTE: Authority cited: Sections 139, 139.2, 4061 and 4062, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY

1. Renumbering and amendment of former section 32 to new section 30.5 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 31. QME Panel Selection.

(a) The panels shall be selected randomly from the appropriate specialty requested by the employee, with consideration given to the proximity of the QME's medical office to the employee's residence.

(b) The unrepresented employee shall make an appointment request with a QME listed on the panel and may consult with his or her primary treating physician as to an appropriate QME specialist. Neither the claims representative nor a representative of the employer nor a QME may discuss or make the selection of a panel QME for an unrepresented worker at any time.

(c) The Medical Director shall exclude from the panel selection process any QME who has informed the Medical Director that he or she is unavailable pursuant to Section 33.

(d) Any physician who has served as a primary treating physician or secondary physician and who has provided treatment in accordance with Section 9785.5 of this Title for this injury for an unrepresented employee shall not perform a QME evaluation on that employee. If that QME ap-

pears on a panel, he or she shall disqualify him or herself, and the employee may request a replacement QME pursuant to Section 31.5.

NOTE: Authority cited: Sections 4061 and 4062, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Repealer of subsection (d) and subsection relettering, and amendment of newly designated subsection (d) filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Amendment of subsections (b) and (d) filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 31.1. The Qualified Medical Evaluator Panel Selection Form.

NOTE: Authority cited: Sections 139.2, 4061 and 4062, Labor Code. Reference: Section 139.2, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Amendment of section heading and form filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Repealer filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 31.2. The Qualified Medical Evaluator Panel Selection Instruction Form.

NOTE: Authority cited: Sections 133, 139, 139.2, 4061 and 4062, Labor Code. Reference: Sections 139.2, 4061, 4061.5 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Amendment of section heading and form filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Change without regulatory effect amending paragraph 1) filed 2–25–97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 9).
4. Repealer filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 31.5. QME Replacement Requests.

(a) A replacement QME to a panel shall be provided to an unrepresented worker upon the employee's request if any of the following occurs:

(1) A QME on the panel issued does not practice in the specialty requested by the employee.

(2) A QME on the panel issued cannot schedule an examination for the employee within 60 days of the employee's request.

(3) The employee has changed his or her residence address since the QME panel was issued.

(4) A physician on the QME panel is a member of the same group practice as defined by Labor Code section 139.3 as another QME on the panel.

(5) The QME is unavailable pursuant to section 33.

(b) Any party may request a replacement QME if any of the following occurs:

(1) The employee's primary treating physician in accordance with Section 9785 of this Title is on the panel.

(2) The claims administrator or, if none, the employer and the unrepresented employee agree that a new panel may be issued in the geographic area of the employee's work place.

(3) The Medical Director, upon written request, finds good cause that a replacement QME is appropriate for reasons related to the medical nature of the injury. For purposes of this subsection, "good cause" is defined as a documented medical or psychological impairment.

(4) The Medical Director, upon written request, determines after a review of all appropriate records that the specialty chosen by the injured worker is medically or otherwise inappropriate for the injury to be evaluated.

(5) Any violation of Section 34.

(c) The Medical Director shall select replacement QME(s) at random.

NOTE: Authority cited: Sections 139, 139.2, 4061 and 4062, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
2. Amendment of subsections (b), (b)(1) and (b)(3) and new subsections (b)(4)–(5) filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 32. Consultations.

(a) For injuries occurring between January 1, 1991 and December 31, 1993, a party may request the Medical Director to direct the QME to consult with a physician in an appropriate specialty to address issues outside the QME's specialty if the party believes such a consultation is necessary to provide a complete and accurate examination pursuant to section 4061 of the Labor Code. The party requesting the consultation shall specify in writing the reasons for the consultation. Valid reasons for providing the QME consultation shall include, but not be limited to, the expertise of the QME, the accuracy of the QME comprehensive medical–legal evaluation in question and the complexity of the medical issue involved.

(b) The Medical Director shall appoint a separate list of physicians for requests pursuant to subsection (a), and shall, in his or her discretion, grant or deny the request within 30 days.

(c) For injuries occurring on or after January 1, 1994 a QME may obtain a consultation from any physician who has treated the unrepresented employee for the injury listed on the panel request form or by any physician as reasonable and necessary pursuant to Labor Code section 4064 or upon agreement by a party to pay the cost.

(d) In any case where an acupuncturist has been selected by the injured worker from a three–member panel and an issue of disability is in dispute, the acupuncturist shall request a consult from a QME defined under § 1(n) to evaluate the disability issue(s). The acupuncturist shall evaluate all other issues as required for a complete evaluation.

NOTE: Authority cited: Sections 139.2, 4061, 4062 and 4064, Labor Code. Reference: Sections 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Renumbering of former section 32 to new section 30.5 and renumbering and amendment of former section 32.5 to section 32 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 32.5. Rebuttal QME Examinations.

(a) For injuries occurring between January 1, 1991 and December 31, 1993, an unrepresented employee shall have the right to a QME panel for one comprehensive medical–legal evaluation to rebut the findings of a panel QME, provided however, that the rebuttal evaluation is reasonable and necessary to resolve a disputed medical fact as defined in section 9793(e) of this Title. The employee shall notify in writing the claims administrator, or if none, the employer, the justification for the rebuttal evaluation. A copy of this notice shall be submitted to the Medical Director with this request. Reasonable and necessary justification shall include but not be limited to a discrepancy between the treating physician's conclusions and the QME's conclusions as to the level of permanent impairment, the need for medical treatment or the employee's status as a Qualified Injured Worker.

(b) For injuries occurring on or after January 1, 1994, and upon request by the Appeals Board, the Medical Director shall assign a QME to address disputed issues provided, however, that the claims administrator or if none, the employer, agrees to pay for the cost of this rebuttal examination.

NOTE: Authority cited: Sections 139.2, 4061, 4062 and 4064, Labor Code. Reference: Sections 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
2. Renumbering of former section 32.5 to section 32 and renumbering and amendment of former section 32.7 to section 32.5 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 32.7. Rebuttal QME Examinations.

NOTE: Authority cited: Sections 139.2, 4061 and 4062, Labor Code. Reference: Sections 4061 and 4064, Labor Code.

HISTORY

1. New section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
2. Renumbering of former section 32.7 to section 32.5 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 33. Unavailability of QME.

(a) A QME who will be unavailable to accept appointments to a QME panel for a period of 14 days or more for any reason, including a change of address, absent good cause including but not limited to medical or fam-

ily emergency, shall notify the Medical Director by submitting the form in Section 109. The form shall be filed with the Medical Director 30 days prior to the period of unavailability. The Medical Director may, in his or her discretion, grant a notice of unavailability within the 30 day period in cases of injury or illness to the QME or his or her immediate family.

(b) It shall not be an acceptable reason for unavailability that a QME does not intend to perform comprehensive medical-legal evaluations for unrepresented workers. A QME who has filed notification for unavailability for more than 90 days during the QME fee period without good cause may be denied reappointment subject to Section 52. Good cause includes, but is not limited to sabbaticals or death of immediate family member.

(c) If an unrepresented employee is unable to obtain an appointment for an evaluation with a selected QME within 60 days after an appointment request, the employee may report the unavailability of the QME to the Medical Director. The Medical Director shall provide a replacement QME at random to be added to the employee's panel in accordance with Section 31(d). The employee may choose to waive his or her right to replacement QME and accept a later appointment with the originally selected QME or select one of the two remaining QME's on the panel.

(d) If a QME fails to notify the Medical Director, by submitting the form in Section 109, of his or her unavailability at a medical office due to a change in address for that office within 30 days of the change, the Medical Director may designate the QME to be unavailable at that location for 30 days from the date the Medical Director learns of the change in address. At that time, a certified letter will be sent to the QME by the IMC regarding his/her unavailability. If the IMC does not receive a response within 30 days of the date of certification of the letter, then the QME will be made inactive at that location.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Amendment filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 33.1. The Notice of QME Unavailability Form.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Amendment of section heading, repealer and new section filed 8-23-96; operative 9-22-96 (Register 96, No. 34).
3. Repealer filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 34. Appointment Notification.

(a) When an unrepresented employee makes an appointment with a QME, the QME shall complete an appointment notification form by submitting the form in Section 110. This completed form shall be postmarked or sent by facsimile to the employee and the claims administrator or, if none, the employer within 5 working days of the date the appointment was made. Failure to comply with this requirement shall constitute grounds for denial of reappointment under Section 51.

(b) The QME shall schedule an appointment for a comprehensive medical-legal examination which shall be conducted only at the medical office listed on the panel selection form.

(c) The QME shall include within the notification whether a Certified Interpreter, as defined by Labor Code Section 5811 and subject to the provisions of section 9795.3 of this Title, is required and specify the language. The interpreter shall be arranged by the party who is to pay the cost as provided for in Section 5811 of the Labor Code.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Amendment of subsections (a) and (c) filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 34.1. The Appointment Notification Form:

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Repealer filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 35. Exchange of Information.

(a) Where an employee is unrepresented, the claims administrator or, if none, the employer shall, and the employee may, provide to the QME:

(1) All records prepared or maintained by the employee's treating physician or physicians;

(2) Other medical records in their possession, including any previous treatment records, and/or non-medical records or information which are relevant to the evaluation of the employee's injury;

(3) A letter outlining the issues which the QME is requested to address in the evaluation, which shall be served on the opposing party no less than 20 days in advance of the evaluation;

(b) In no fewer than 20 days before the information is to be provided to the QME, the party providing such information shall serve on the opposing party the following:

(1) A copy of all medical records and medical reports to be sent.

(2) A copy of all non-medical documents or other non-medical information, including films or videotapes, to be sent. The claims administrator or employer shall include a cover letter or other document when providing such information to the employee which shall clearly and conspicuously include the following language: "Please look carefully at the enclosed information. It may be used by the doctor who is evaluating your medical condition as it relates to your workers' compensation claim. If you do not want the doctor to see this information, you must let me know within 10 days."

(3) Copies of all records being sent to the QME shall be sent to all parties except as otherwise provided in section (c). Failure to do so shall constitute ex parte communication by the party transmitting the information under section (f).

(c) In the event that the unrepresented employee schedules an appointment within 20 days of receipt of the panel, the employer or if none, the claims administrator shall not be required to comply with the 20 day time frame for sending medical information in subsection (b)(1) provided, however, that the unrepresented employee is served all non-medical information in subsection (b)(2) 20 days prior to the information being served on the QME so the employee has an opportunity to object to any non-medical information.

(d) In the event that a party fails to provide to the QME any relevant medical record which the QME deems necessary to perform a comprehensive medical-legal evaluation, the QME may contact the treating physicians or other health care provider, to obtain such record(s). If the party fails to provide relevant medical records under section (a) within 10 days after the date of the evaluation, and the QME is unable to obtain the records, the QME shall complete and serve the report to comply with the statutory time frames under Section 38. The QME shall note in the report that the records were not received within the required time period. Upon request by the party, or the Appeals Board, the QME shall complete a supplemental evaluation when the relevant medical records are received. For a supplemental report the QME need not conduct an additional physical examination of the employee if the QME believes a review of the additional records is sufficient.

(e) The QME and the employee's treating physician(s) may consult as necessary to produce a complete and accurate report. The QME shall note within the report new or additional information received from the treating physician.

(f) If an employer or claims administrator communicates with a QME in violation of Labor Code section 4062.2, the Medical Director shall provide the unrepresented employee with a new panel in which to select a new QME or the employee may elect to proceed with the original QME. If an employee communicates with a QME either before or after the eval-

uation, in violation of Labor Code section 4062.2, the claims administrator or employer may request the Medical Director to issue a new panel to the unrepresented employee. The Appeals Board shall retain jurisdiction to determine whether ex parte contact has occurred in all cases.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062, 4062.2, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. New subsection (c) and subsection relettering, amendment of newly designated subsections (d) and (e) and new subsection (f) filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. New subsection (b)(3) and amendment of subsection (e) filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 35.5. Compliance by QMEs with IMC Guidelines.

Any evaluation pursuant to Labor Code 4060, 4061 and 4062 shall be performed in compliance with all appropriate evaluation procedures pursuant to Article 4 of this Chapter.

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 36. Summary Form for Comprehensive Medical–Legal Evaluation Performed Pursuant to Labor Code Section 4061 by QMEs or AMEs; Service of Form and Evaluation.

(a) Upon completion of either a comprehensive medical–legal evaluation or follow–up medical legal evaluation as defined under Section 9793(f) of this Title, of an unrepresented employee, the evaluator shall complete the QME/AME Findings Summary Form in Section 111. The Form shall not be required for a supplemental medical legal evaluation under 9793(k) of this Title. The evaluator shall serve the comprehensive medical–legal evaluation, the summary form, and DEU forms 100 and 101 on the employee, and the claims administrator, or if none, the employer, as well as the appropriate local DEU office within the time frames specified in Section 38.

(b) If an evaluation is completed under subsection (a) for an unrepresented employee, in which the QME determines that the employees condition has not become permanent and stationary as of the date of the evaluation, the parties shall request any further evaluation from the same QME if the QME is currently an active QME and available at the time of the request for the additional evaluation. If the QME is unavailable, a new panel may be issued to resolve any disputed issue(s). If the evaluator is no longer a QME, he/she may issue a supplemental report as long as a face–to–face evaluation (as defined in section 49(b) of these regulations) with the injured worker is not required. In no event shall a physician who is not a QME or no longer a QME perform a follow up evaluation on an injured worker.

NOTE: Authority cited: Section 139, Labor Code. Reference: Sections 4060, 4061 and 4062, Labor Code; and 8 CCR 10161.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Amendment of section heading, section and NOTE filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 36.1. The Qualified or Agreed Medical Evaluator's Findings Summary Form.

NOTE: Authority cited: Sections 139, 139.2, 4061 and 4062, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Change without regulatory effect amending section filed 11–9–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 45).
3. Amendment of section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
4. Repealer filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 37. Treating Physician's Determination of Medical Issues Form.

Pursuant to Labor Code Sections 4061.5 and 139(e)(9), this form may be used by the treating physician primarily responsible for managing the care of the injured worker, or the physician designated by that physician, when rendering opinions on all medical issues necessary to determine eligibility for compensation. The Treating Physician's Determination of Medical Issues Form (Treating Physician's Form) is as follows:

NOTE: Sections 139, 4061 and 4061.5, Labor Code. Reference: Sections 139(e)(9), 4061 and 4061.5, Labor Code.

HISTORY

1. New section and forms filed 5–17–95; operative 5–24–95 pursuant to Government Code section 11343.4(d) (Register 95, No. 20).

Department of Industrial Relations, Industrial Medical Council P.O. Box 8888, San Francisco, CA 94128 • (800) 794-6900

**State Of California**

# TREATING PHYSICIAN'S DETERMINATION OF MEDICAL ISSUES

*(The use of this form is optional. You may use it for interim/supplemental reports, at the completion of treatment, patient's discharge or when patient becomes permanent and stationary to address relevant issues. Read the affirmation and sign page 2. Attach additional pages if necessary.)*

**Employee:** _____ 2. Claim Number: _____
1. (Last Name) (First Name) (M.I.)

3. Social Security Number: ___ - ___ - ___ (For record keeping purposes only.) 4. Date of Birth: __/__/__ mm/dd/yy 5. Date of Injury(ies): __/__/__ mm/dd/yy

6. Occupation Title: _____ 7. Date of This Exam: __/__/__ mm/dd/yy 8. Date of Next Exam: __/__/__ mm/dd/yy

9. **Employer:** _____ 10. **Insurer/Claims Administrator:** _____

Consult Necessary? yes ☐ no ☐ Referral Necessary? yes ☐ no ☐ Primary Treating Physician (name): _____

11. **Current Diagnosis. Use ICD-9 Codes or DSM-IV (Also state diagnosis in lay terms if possible)**
**Primary:** _____
**Other:** _____

## PATIENT STATUS

12. **Since the last exam, the patient's condition has: (Check applicable boxes)**

☐ improved as expected ☐ improved, but more slowly than expected ☐ not improved significantly ☐ worsened

☐ now been determined to be non-work related ☐ plateaued, no further improvement is expected ☐ Check only if patient has been discharged from care on __/__/__ mm/dd/yy

13. Patient has been complying with treatment regimen: ☐ YES ☐ NO

14. **Objective or Clinical Findings:** Give all significant physical or psychological examination, testing, laboratory, imaging or diagnostic findings including applicable measurements. (Use glossary of activity terms as applicable)

15. **Subjective Findings:** Describe the complaints in the patient's own words. Then, using the standard terminology (listed in instructions under terms that describe intensity of pain) separately describe the subjective findings and list any aggravating or mitigating factors. Also list relevant prior injuries/ impairments/disabilities.

16. **History of Injury/Changes in condition**

## WORK STATUS

17. **The patient has been instructed to:**

☐ remain off the rest of this day and return to work Estimated date patient can return to work __/__/__ mm/dd/yy
☐ with no limitations
☐ with limitations of _____

☐ now return to work Date returning to work __/__/__ mm/dd/yy
☐ with no limitations
☐ with limitations of _____

☐ remain off work and continue treatment Estimated date patient can return to work __/__/__ mm/dd/yy

IMC FORM 81556 (4/95)

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## TREATMENT

18. **Treatment plan (complete all that apply):**

- ❑ has not changed from last report
  estimated date of completion of treatment ~~mm/dd/yy~~
- ❑ Current Medication: _____
- ❑ Current Physical Medicine/Therapy: Type: _____
  Frequency: _____
  Duration: _____

Attach and briefly describe any new reports for:

- ❑ Diagnostic Studies: _____
- ❑ Hospitalization/Surgery: _____
- ❑ Consultation/Other Services: _____

19. **Comments:** (Note any changes in treatment plan)

## PERMANENT DISABILITY STATUS

20. **Patient is:** **(Check applicable boxes)**

- ❑ discharged, pre-injury status achieved (Do not prepare narrative report unless requested).
- ❑ permanent & stationary (maximum medical improvement)(see box at bottom of this page).
- ❑ permanently precluded from engaging in his/her usual and customary occupation (attach RU-90).
- ❑ I am unable to determine patient's permanent disability status at this time.

## AFFIRMATIONS

**I personally prepared this report. Any parties assisting in the records review, evaluation or testing procedures are listed in the attachment to this report.**

I declare under penalty of perjury that the information contained in this report and its attachments, if any, is true and correct to the best of my knowledge and belief, except as to information that I have received from others. As to that information, I declare under penalty of perjury that the information accurately describes the information provided to me and, except as noted in this report, that I believe it to be true. I have not violated Labor Code Section 139.3, and the contents of this report and bill are true and correct to the best of my knowledge.

The foregoing declaration was signed in _____ County, California, on _____ (mm/dd/yy)

Signature _____ License No. _____

Name (typed or printed) _____ Specialty (if any) _____
LAST FIRST M.I.

Address: _____ _____ _____ ( ) _____
(Street or P.O. Box) City Zip Telephone number

**Note to physician: If this is a final report, you are required to serve this report on the claims administrator and patient/patient's attorney.**

**IF THIS IS A FINAL REPORT AND THE PATIENT HAS NOT ACHIEVED PRE-INJURY STATUS, THE FOLLOWING ISSUES, IF RELEVANT, SHOULD BE ADDRESSED IN NARRATIVE FORMAT. THIS REPORT WILL BE USED TO RATE YOUR PATIENT'S DISABILITY. YOUR OPINIONS CARRY GREAT WEIGHT. YOU MUST DESCRIBE THE BASIS FOR YOUR CONCLUSIONS IN YOUR REPORT. YOU MUST ALSO PROVIDE A LISTING OF ALL INFORMATION RECEIVED FROM THE PARTIES, REVIEWED IN PREPARATION OF THE REPORT OR RELIED UPON FOR THE FORMULATION OF YOUR OPINION. IF THE INJURY IS ALLEGED TO BE A PSYCHIATRIC INJURY, A DETERMINATION OF THE PERCENT OF THE TOTAL CAUSATION RESULTING FROM ACTUAL EVENTS OF EMPLOYMENT IS REQUIRED. SEE ATTACHED GLOSSARY OF ACTIVITY TERMS AND TERMS THAT DESCRIBE INTENSITY OF PAIN AND FREQUENCY OF SYMPTOMS.**

## ISSUES WHICH SHOULD BE ADDRESSED, IF RELEVANT, IN NARRATIVE REPORT

History of the Injury or Illness. Outline the specific details of the injury or illness. Describe the course(s) of treatment, diagnostic procedure performed and give names of any other treating or consulting physicians.

General Medical History. Describe any previous, current or subsequent medical information relevant to this injury or illness.

Occupational History. Description of present and prior occupational duties. List source of description of duties. Where possible, use RU91, DEU 100's Job Analysis or you may use the Occupational History Form from the Physician's Guide.

Present Complaints. Describe in the patient's words and also report using the appropriate medical terminology.

Examination Findings. Use objective measurements where appropriate. Give all significant physical or psychological examination, testing, laboratory, imaging, or diagnostic findings.

Diagnostic Impression. Where possible, use ICD-9 codes or terminology and criteria of the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition-Revised.

Permanent Disability. Describe in appropriate terminology from the instructions your evaluation of the subjective and objective findings that describe both the intensity and frequency of the symptoms. Give measurements or objective factors if relevant. Describe any reduction of pre-injury work capacity, citing documentation or source of pre-injury capacity.

Work Limitations. Describe any limitations to all activities listed in the instructions.

Causation. Describe how the permanent disability is related to the patient's occupation and the specific injury or cumulative events causing this illness. You may refer to the Physician's Guide for discussions.

Apportionment. If any of the permanent disability arose or has arisen from other factors, (i.e. other injuries, underlying medical condition) describe the apportionment between the disability resulting from this injury and any previous or subsequent disability. You may refer to the Physician's Guide for discussions.

Medical Care. Describe any need for ongoing or future medical care as it relates to the industrial injury. Be as specific as possible regarding the type and frequency of care that will probably be needed in the future.

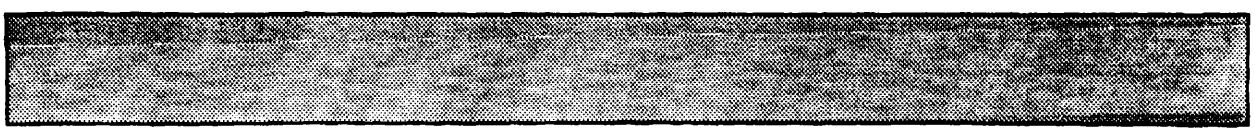
Vocational Rehabilitation. Is the patient able to continue doing the type of work in which he/she was engaged at the time of injury/illness? If not, what specific modifications would be medically appropriate? What work restrictions or limitations are appropriate? (This should be consistent with work limitations above). Indicate what source you used to describe the duties of the patient's job at the time of injury. (This should be consistent with occupational listing above).

Psychiatric protocols. If psychiatric disability exists, please refer to the psychiatric protocols established by the Industrial Medical Council. (8 CCR § 43) (Copies are available at (800) 794-6900)

Affirmations: The Affirmations on page 2 must be included in any additional final narrative report in which the patient has not achieved pre-injury status.

**Except as prohibited by Labor Code section 139.3, a primary treating physician may designate another physician who is licensed in California to prepare the final report.**

**You need not file or serve this page or the instruction page with the Treating Physician's Determination of Medical Issues form. If you are not familiar with the terminology or reporting requirements for disability evaluations, you may refer to discussions in the "Physician's Guide" or the "Treating Physician's Alert" available from the IMC.**



## ****** INSTRUCTIONS ******

### GLOSSARY OF ACTIVITY TERMS

***Balancing*** : Maintaining body equilibrium to prevent falling when walking, standing, crouching, or running on narrow, slippery, or erratically moving surfaces; or maintaining body equilibrium when performing gymnastic feats.

***Bending*** : Angulation from neutral-straight position about joint (eg-elbow) or spine (forward or lateral spine flexion).

***Carrying*** : Transporting an object, usually holding it in the hands or arms, or on the shoulder.

***Climbing*** : Ascending or descending ladders, stairs, scaffolding, ramps, poles, and the like, using feet and legs and/or hands or arms. For climbing, the emphasis is placed upon body agility; for balancing, it is placed upon body equilibrium.

***Crawling*** : Moving about on hands and knees or hands and feet.

***Crouching*** : Bending body downward and forward by bending legs and spine

***Feeling***: : Perceiving attributes of objects such as size, shape, temperature, or texture by means of receptors in skin particularly those of finger tips

***Fingering*** : Picking, pinching, or otherwise working with fingers primarily (rather than with whole hand or arm as in handling).

***Handling*** : Seizing, holding, grasping, turning or otherwise working with hand or hands (fingering not involved).

***Kneeling*** : Bending legs at knees to come to rest on knee or knees.

***Lifting*** : Raising or lowering an object from one level to another (includes upward pulling).

***Pushing*** : Exerting force upon an object so that the object moves away from the force (includes slapping, striking, kicking, and treadle actions).

***Pulling*** : Exerting force upon an object so that the object moves toward the force (includes jerking).

***Reaching*** : Extending the arm(s) in any direction.

***Sitting*** : Remaining in the normal seated position.

***Standing*** : Remaining on one's feet in an upright position at a work station without moving about.

***Stooping*** : Bending body downward and forward by bending spine and waist.

### TERMS THAT DESCRIBE INTENSITY OF PAIN

A ***SEVERE*** pain would preclude the activity precipitating the pain.

A ***MODERATE*** pain could be tolerated, but would cause marked handicap in the performance of the activity precipitating the pain.

A ***SLIGHT*** pain could be tolerated, but would cause some handicap in the performance of the activity precipitating the pain.

A ***MINIMAL*** (mild) pain would constitute an annoyance, but would cause no handicap in the performance of the particular activity (and would be considered a nonratable permanent disability).

### TERMS THAT DESCRIBE FREQUENCY OF OCCURRENCE OF SYMPTOMS

***Occasional*** means approximately 25% of the time.

***Intermittent*** means approximately 50% of the time.

***Frequent*** means approximately 75% of the time.

***Constant*** means approximately 90-100% of the time.

### § 38. Medical Evaluation Time Frames; Extensions for QMEs and AMEs.

(a) For a late report, regardless of the date of injury, if any of the following occur, the unrepresented injured worker shall be entitled to a new three-member QME panel:

(1) the QME fails to request an extension

(2) the timeframe extension is denied

(3) the QME does not issue the report by the approved extension date.

The injured worker shall have 15 days from the date of notice by the Medical Director to complete, sign and return IMC Forms 113, 115, 116 as applicable. If the employee requests a new panel, the claims administrator or, if none, the employer shall have no liability for the late report. If the employee is represented by an attorney and the extension is denied to an AME, either party may withdraw from the AME and no party shall be liable for payment to the AME.

(b) For injuries between January 1, 1991 and December 31, 1993, the time frame for comprehensive medical-legal evaluations to be prepared and submitted shall not exceed 45 days after the QME or AME has seen the employee or otherwise commenced the comprehensive medical-legal evaluation procedure. Extension of the 45-day limit shall be approved when the evaluator has good cause or has not received test results or consulting physicians' evaluations necessary to address all disputed medical issues in time to meet the initial 45-day deadline. If the evaluation is not completed on the scheduled date through no fault of the QME, the QME may request an extension not to exceed an additional 45 days from the Medical Director. The evaluator shall notify the employee and the claims administrator or, if none, the employer not later than 5 days before the initial 45-day period expires that an extension is warranted. A copy of the notice shall be sent to the Medical Director. The notice shall be on the form in Section 112. If the extension of time requires additional days greater than 90 days from the date of the evaluation for the submission of the report, approval or denial shall be granted within 10 days by the Medical Director.

(c) For injuries on or after January 1, 1994, the time frame for comprehensive medical-legal evaluations to be prepared and submitted shall not exceed 30 days after the QME or AME has seen the employee or otherwise commenced the comprehensive medical-legal evaluation procedure. Extension of the 30-day limit shall be approved when the evaluator has good cause or not received test results or consulting physicians' evaluations necessary to address all disputed medical issues in time to meet the initial 30-day deadline. If the evaluation is not completed on the scheduled date through no fault of the QME, the QME may request an extension not to exceed an additional 30 days from the Medical Director. The evaluator shall notify the employee and the claims administrator, or if none, the employer not later than 5 days before the initial 30-day period expires that an extension is warranted. A copy of the notice shall be sent to the Medical Director. The notice shall be on the form in Section 112. If the extension of time requires additional days greater than 60 days from the date of the evaluation for the submission of the report, approval or denial shall be granted within 10 days by the Medical Director.

(d) Extensions for good cause shall not exceed an additional 15 days from the date the report is to be served. Good cause means:

(1) medical emergencies of the evaluator or the evaluator's family;

(2) death in the evaluator's family;

(3) natural disasters or other community catastrophies that interrupt the operation of the evaluator's office operations;

(e) Extensions shall not be granted because relevant medical information/records (including Disability Evaluation Form 101 8 CCR §10161(b)) have not been received. The evaluator shall complete the report based on the information available and state that the opinions and/or conclusions may or may not change after review of the relevant medical information/records.

(f) The time frame for supplemental reports in unrepresented cases shall be no more than 60 days from the date of a written or electronically transmitted request to the physician by a party. The request for a supplemental report shall be accompanied by any new medical records unavailable to the QME at the time of the original QME evaluation in compliance with section 10160(f) of this Title. An extension of the 60 days may be agreed to by the parties.

(g) Evaluators giving notice of time extensions will be monitored and advised by the Medical Director when such notices appear unreasonable or excessive. Failure to comply with this section may constitute grounds for denial of the QME's request for reappointment pursuant to Section 51.

NOTE: Authority cited: Sections 139.2, 4061 and 4062, Labor Code. Reference: Sections 139.2, 4061, 4062 and 4067.5, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Amendment of subsections (a) and (b), new subsections (c)-(c)(3) and subsection relettering, and amendment of newly designated subsection (d) filed 8-23-96; operative 9-22-96 (Register 96, No. 34).
3. Amendment filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 38.1. The QME and AME Time Frame Extension Request Form:

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062 and 4062.5, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Change without regulatory effect amending form filed 4-2-96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 14).
3. Repealer filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 38.2. "The Time Extension Approval" Form:

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062 and 4062.5, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Change without regulatory effect amending section filed 3-28-96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 13).
3. Repealer filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 38.3. The "Denial of Time Extension" Form.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062 and 4062.5, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Amendment of section heading and repealer and new section filed 8-23-96; operative 9-22-96 (Register 96, No. 34).
3. Repealer filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 38.4. The "Notice of Late QME Report" Form:

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062 and 4062.5, Labor Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
2. Repealer filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

### § 39. Records, Destruction of.

The Medical Director may destroy any forms included in these regulations five years after the date of receipt, provided that the completed "Application for Appointment as Qualified Medical Evaluator" form shall be preserved for each QME during the period(s) of his or her appointment as a QME. The "Request for Qualified Medical Evaluator" forms may be destroyed by the Medical Director two years after the date of receipt.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code; and Section 14755, Government Code.

HISTORY

1. New section filed 8-1-94; operative 8-31-94 (Register 94, No. 31).

### § 39.5. Records, Retention by QMEs.

(a) All QMEs shall retain all comprehensive medical-legal reports completed by the QME for a period of five years from the date of the employee's evaluation. Upon written request, a QME is required to return original radiological and imaging studies and or original medical records.

(b) An evaluator shall submit all comprehensive medical/legal reports performed as a QME under this article to the Medical Director upon re-

quest for a review by the Medical Director. Failure to submit evaluations upon request by the Medical Director may constitute grounds for disciplinary action pursuant to Section 60.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code; and Section 14755, Government Code..

HISTORY

1. New section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
2. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## Article 4. Evaluation Procedures

### § 40. Disclosure Requirements: Unrepresented Workers.

(a) A QME shall advise an unrepresented injured worker prior to or at the time of the actual evaluation of the following:

(1) That he or she is entitled to ask the QME and the QME shall promptly answer questions about any matter concerning the evaluation process in which the QME and the injured worker are involved;

(2) That subject to Section 41(e), the injured worker may discontinue the evaluation based on good cause. Good cause includes discriminatory conduct by the evaluator towards the worker based on race, sex, national origin, religion, or sexual preference, and instances where the evaluator requests the worker to submit to an unnecessary exam or procedure.

(b) When required as a condition of probation by the Council or his/her licensing authority, the QME shall disclose his/her probationary status. The QME shall be entitled to explain any circumstances surrounding the probation. If at that time, the injured worker declines to proceed with the evaluation, such termination shall be considered by the Council to have occurred for good cause.

(c) If the injured worker declines to ask any questions relating to the evaluation procedure as set forth in Section 40(a), and does not otherwise object on the grounds of good cause to the exam proceedings under Section 41(a) during the exam itself, the injured worker shall have no right to object to the QME comprehensive medical–legal evaluation based on a violation of this section.

NOTE: Authority cited: Sections 139.2 and 5307.3, Labor Code. Reference: Sections 139, 139.2, 4060, 4061 and 4062, Labor Code

HISTORY

1. New article 4 heading and section filed 4–11–95; operative 5–11–95 (Register 95, No. 15).
2. Amendment of article 4 heading filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 41. Ethical Requirements.

(a) All QMEs, regardless of whether the injured worker is represented by an attorney, shall:

(1) Maintain a clean, professional medical office (as defined in Section 1(m)) at all times including functioning evaluating medical instruments and equipment appropriate to conducting the evaluation within the physician's scope of practice.

(2) Schedule all appointments for comprehensive medical–legal evaluations without regard to whether a worker is unrepresented or represented by an attorney. A QME shall not refuse to schedule an appointment with an injured worker solely because the worker is not represented by an attorney or because a promise to reimburse or reimbursement is not made prior to the evaluation.

(3) Not request the employee to submit to an unnecessary exam or procedure.

(b) QMEs selected by an unrepresented injured worker from a three–member panel provided by the Council shall not engage in ex parte communication in violation of Labor Code Section 4062.2.

(c) All QMEs, regardless of whether the injured worker is represented by an attorney, shall with respect to his or her comprehensive medical–legal evaluation:

(1) Refuse any compensation from any source contingent upon writing an opinion that in any way could be construed as unfavorable to a party to the case.

(2) Review all available relevant medical and non–medical records and/or facts necessary for an accurate and objective assessment of the injured workers' case before generating a written report.

(3) Render expert opinions or conclusions without regard to an injured workers' race, sex, national origin, religion or sexual preference.

(4) Render expert opinions or conclusions only on issues with regard to which the QME has adequate qualifications, education, and training. All conclusions shall be based on the facts and on the QME's training and specialty–based knowledge and shall be without bias either for or against the injured worker or the employer.

(5) Present a report that addresses all relevant issues, is ratable by the DEU, if applicable, and complies with all relevant guidelines of the Industrial Medical Council.

(d) All aspects of all physical and/or psychological comprehensive medical–legal evaluations, including history taking, shall be directly related to medical issues as presented by any party or addressed in the reports of treating physician(s).

(e) No physician certified by the IMC as a QME, or his or her agent, shall contact a QME for the purpose of influencing that QME's opinions or conclusions in any QME evaluation.

(f) No QME shall schedule appointments to the extent that any injured worker will be required to wait for more than one hour at a QME's office prior to being seen for the previously agreed upon appointment time for an evaluation. If the injured worker is unrepresented and is not seen by the QME within one hour, he or she may terminate the exam and request a replacement evaluator from the Council. No party shall be liable for the terminated exam. The QME may explain any reasons for the delay to the injured worker and, provided both parties agree, the evaluation may proceed or be rescheduled at a later date. If the evaluation is rescheduled, the QME shall provide notice to the claims administrator or, if none, the employer within 5 working days after rescheduling the appointment.

(g) If the injured worker terminates the examination process based on an alleged violation of either Section 40 or Section 41(a) and the Appeals Board later determines that good cause did not exist for the termination, the cost of the evaluation shall be deducted from the injured worker's award. A violation of Section 40 or of any part of section 41(a) shall constitute good cause for purposes of an Appeals Board determination. No party shall be liable for any cost for medical reports or medical services delivered as a result of an exam terminated for good cause.

(h) Nothing in this section shall require a QME to undertake or continue a comprehensive medical–legal evaluation where the injured worker or his/her representative uses abusive language towards the QME or the QME's staff or deliberately attempts to disrupt the operation of the QME's office in any way. The QME shall state under penalty of perjury, the facts supporting the termination of the evaluation process. Upon request, the Medical Director shall investigate the facts and make a final determination of the issue(s).

(i) Nothing in this section shall require a QME to undertake or continue a comprehensive medical–legal evaluation where the injured worker is intoxicated or under the influence of any medication which impairs the injured worker's ability to participate in the evaluation process. The QME shall state under penalty of perjury, the facts supporting the termination of the evaluation process. Upon request, the Medical Director shall investigate the facts and make a final determination of the issue(s).

NOTE: Authority cited: Sections 139.2, 5307.3 and 5307.6, Labor Code. Reference: Sections 139, 139.2, 4060, 4061, 4062 and 4062.2, Labor Code

HISTORY

1. New section filed 4–11–95; operative 5–11–95 (Register 95, No. 15).
2. New subsection (b), subsection relettering, and amendment of redesignated subsection (b)(1) filed 7–18–95 as an emergency; operative 7–18–95 (Register 95, No. 29). A Certificate of Compliance must be transmitted to OAL by 11–15–95 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 7–18–95 order including amendment of subsection (b), deletion of subsection (b)(1) designator, and amendment of NOTE transmitted to OAL 11–14–95 and filed 12–21–95 (Register 95, No. 51).

4. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## § 42. Disciplinary Proceedings.

NOTE: Authority cited: Sections 139.2 and 5307.3, Labor Code; Section 11370 et seq., Government Code; and Section 11500 et seq., Government Code. Reference: Sections 139, 139.2, 4060, 4061 and 4062, Labor Code

HISTORY

1. New section filed 4–11–95; operative 5–11–95 (Register 95, No. 15).

2. Repealer filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## § 43. Method of Measurement of Psychiatric Disability.

The Method of measuring the psychiatric elements of a disability shall be as set forth below in the "Psychiatric Protocols" as adopted by the Industrial Medical Council on July 16, 1992, and amended on March 18 and October 25, 1993.

## Chapter I

## OUTLINES OF EVALUATION REPORTS

As a means of introducing some standardization to the contents of evaluation reports, two model outlines are presented in this Chapter. Subchapter A, the Evaluation Report for Psychiatric Disability, is a guide for the physician, who may be either a psychiatrist or psychologist, who is conducting evaluation of psychiatric injuries. It assures that the clinician has provided all the information and opinions required by W.C.A.B. Rules of Practice and Procedure Section 10606. It also assures that the clinician has conducted the evaluation in a manner consistent with the requirements of the California Labor Code. Subchapter B, the Psychological Assessment Report, is a guide for the psychologist in those instances where the psychologist's role is to provide psychological assessment as part of a collaborative evaluation of psychiatric injury. The latter's findings are to be assimilated into the evaluation report of the independent examiner, supported in detail by a complete psychological assessment report which includes test scores. Additional guidelines with respect to psychological testing are also provided.

Whereas in psychiatry and psychology the process by which the historical data, excluding purely clerical intake data, e.g., patient identifier information, is collected is an intimate component of the psychiatric examination, collection of such information b any person other than a doctoral level trained psychiatrist or psychologist is not acceptable. The doctoral level trained psychiatrist or psychologist who authors the report must collect the historical information via the interview process. The use of other clinicians or non-clinicians cannot substitute for the evaluating clinician, and such reports are deficient. Furthermore, the use of other than the examiner to review the records and edit/write reports is unacceptable. Not uncommonly, the psychiatric examiner reviews personnel files, military records, educational documents and other administrative reports that must not be delegated to the purview of others. Similarly, the nuances of psychiatric diagnosis and formulation of dynamic issues related to the crucial question of returning the employee to the work force must not come from other than a licensed doctoral level practitioner.

The psychiatrist or psychologist who examines an applicant for Workers' Compensation on the basis of alleged psychiatric injury must conduct a careful interview of the applicant addressing elements of the outline for the evaluation report.

To complete the interview almost always will require at least one to three hours of direct contact with the applicant by the examiner. In the case of applicants who have significant expressive/receptive English language deficits, interpreters may be used by the examiner. However, it is preferable that such applicants be evaluated by examiners who can speak and also administer psychological tests in the primary language. The use of interpreters may lead to distortion of the facts and misinterpretation of the data.

Where the psychologist is in the role of a consultant in the medical-legal assessment process, the duplication of certain efforts between the psychologist and the psychiatrist should not typically occur unless warranted by specific circumstances. It should not be necessary for the consultant to duplicate efforts at reviewing records and obtaining historical information in most cases. It may be necessary in the most complex cases where psychological assessment is required that certain records and some portion of the history will need to be addressed by the consulting psychologist. A consulting psychologist is allowed to take a history if it is necessary. However, this is not a typical situation and in the routine case a thorough assessment by one clinician of the records and the obtaining of historical information should suffice. An explanation must be given when duplicative services are provided.

The examiner should conduct such interviews as may be appropriate and possible and should review the psychological assessment findings, the medical and employment and other documents or records[1] of the applicant, and other referral documents. When all this information is assembled, it should be documented in the report with a detailed description of the cognitive, effective, and behavioral signs/symptoms of the applicant, as well as the psychological assessment scores and interpretations.

It should be noted that the following outlines are more suggestive than prescriptive. The content of reports will vary with the referral questions, the nature of the applicant's presenting problems, and, to some extent, the practice of individual clinicians. The suggested headings are not required, but a systematic, quasistandardized report including all the relevant facts is likely to be most useful to judges.

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1 FN1 Employment and other documents or records, if reviewed, should be made available to applicant or his or her counsel at the same time.

## A. EVALUATION REPORT FOR PSYCHIATRY DISABILITY
(To be used by psychiatrist and psychologist examiners.)

1. **Identifying information**
   a. Date, place, and duration of examination
   b. Reason for referral and referral questions
   c. Names and functions of others taking part in the examination, including use of interpreter
   d. Applicant (patient/client)
      1. Date of birth
      2. Date of alleged industrial injury
      3. Date last worked
   e. Sources of facts (Include collaterals, if interviewed)
2. **Description of applicant at interview**
   a. Appearance (Do not omit obvious physical aberrations)
   b. Demeanor, general behavior
   c. Apparent effective state, based on observation
   d. Stream of speech
   e. Interaction with interviewer
3. **Description of applicant's current complaints**
   a. Subjective complaints
   b. Applicant's view of the impairment created by the complaints
4. **History of present illness**
   a. Applicant's description of industrial stressors, onset of complaints, and alleged injuries or illness associated with onset
   b. Psychological response to alleged injury situation
   c. History of mental health problems since alleged injury
   d. History of treatment since alleged injury
   e. Current treatment and medication, including medication taken one day of interview

5. **Occupational history** (Distinguish baseline, injury concurrent, and postinjury events)
   a. Educational level and professional, technical, or vocational training
   b. Sequential description of occupations pursued (including military service)
      1. Training and skills required
      2. Supervisory responsibilities
      3. Career mobility (upward, downward, lateral)
   c. Difficulties and/or accomplishments in each occupational setting
   d. Previous occupational injuries, time lost, and outcome
6. **Past mental health history and relevant medical history**
7. **Family history**
   a. Family of origin
      1. Parent's age, education, occupational history
      2. Sibling's age, education, occupational history
      3. Composition of family during applicant's childhood and youth
      4. Mental health history and relevant medical history of family members
      5. Family response to illness
      6. Relevant social history of family members
      7. Quality of family relations
   b. Family of procreation
      1. Present marital status
      2. Spouse's age, education, occupational history
      3. Number of offspring (Obtain same data for adult offspring as for spouse)
      4. Mental health history and relevant medical history of family members
      5. Relevant social history of family members
      6. Quality of family relations
   c. History of previous marriages
8. **Development history**
9. **Social history** (Distinguish baseline, injury concurrent, and postinjury findings)
   a. Interpersonal relationships
   b. Previous life changes (external stresses and losses) and response to these
   c. Educational history
   d. Legal history, when applicable (Include previous workers' compensation and personal injury claims, with the circumstances and outcome)
   e. Criminal history which is relevant to diagnosis and/or disability
   f. Substance use and abuse

g. Applicant's description of a typical day

**10. Mental Status Examination** (Include relevant negative findings)

a. Level of consciousness

b. Mood, e.g.:
(1). Depression
(2). Liability
(3). Elation
(4). Anxiety
(5). Inappropriateness

c. Cognition/thinking
(1). Orientation
(2). Estimation of intelligence
(3). Memory dysfunction
a. Recall/short-term memory
b. Remote memory
(4). Perceptual and communication disorders (agnosias and aphasias)
(5). Thought content
(6). Thought disorder, e.g.:
a. Ideas of reference
b. Looseness of associations
c. Delusions
d. Perceptual disorders, including hallucinations
e. Intrusive thought/obsessive thinking
(7). Evidence of deficit in
a. Learning
b. Problem solving
c. Judgment
(8). Insight (Include applicant's perception of relationship between injury and psychological condition.)

d. Behavior
1. Motor: Retardation or hyperactivity
2. Appropriateness in interview

e. Evidence of physiologic disturbance
1. Skeletal muscle system
2. Autonomic
3. Somatoform or conversion symptom

**11. Findings from psychological assessment** (Attach complete psychological report)

**12. Review of medical record**

**13. Interviews with collateral sources and Review of Employment or Personnel Records** (Compare description of industrial stressor with applicant's account)

**14. Diagnosis using DSM-IV terminology and criteria**

**15. Summary and conclusions** (Provide sources for all information cited as evidence.)

a. Brief summary of relevant history and findings
b. If any disability, present and justify an opinion concerning the current cause(s), whether or not they are related to the work place. Consider:
(1). The relationship of work exposure to disability
(2). Nonindustrial causes of disability, including pre-existing causal factors
(3). Aggravating or accelerating factors (industrial and non-industrial)
(4). Natural progression of pre-existing disorder
(5). Active or passive contribution of the workplace to the disability. (See Twentieth Century Fox Film Corporation v. W.C.A.B. and Kevin Conway (1983) C.A. 3rd 778, 190 CA: Rptr 560, 48 C.C.C. 275 and also Georgia Pacific Corporation v. W.C.A.B. and Robert H. Byrne (1983) 144 C.A. 3rd 72, 192 Rptr. 643, 48 C.C.C. 443.)
(6). Applicant's subjective reaction to stress at work, if relevant. (See Albertson's Inc. v. W.C.A.B. (Bradley) (1982) 131 Cal.App.3d 308, 182 Cal. Rptr. 304, 47 C.C.C.460.)

Indicate whether actual events of employment were predominant as to all causes combined of the psychiatric injury (see Labor Code Section 3208.3(b)(1) or, if applicable, whether they were a substantial cause (see Labor Code Section 3208.3(b)(2)(3)).

c. Indicate diagnostic entities which were work-disabling prior to the alleged industrial injury and provide evidence.

d. State whether the disability is temporary or has reached a permanent and stationary status and cite evidence. If the condition is permanent and stationary, state on what date it became so and cite evidence. Consider the natural history of the disorder, the response to treatment. If the condition is not yet permanent and stationary, state when you expect it will be so. If you think further reasonable medical treatment will improve the condition, describe the treatment and its expected benefits.

e. If the disability is permanent and stationary, present an opinion regarding the nature and severity of the disability. Describe the disabling symptoms (subjective and objective factors in disability) according to Chapter II. Complete the Work Function Impairment Form (Exhibit "A") citing symptoms, mental status findings, psychological test data, and history as supporting data. (Descriptions of work functions in Exhibit "B") If there is a non-psychiatric disability, a specialist in the area affected.

f. Make an advisory apportionment of disability. In order to do this, describe the disability that would exist at this time in the absence of the work place injury. Cite the evidence on which the estimated preinjury level is based. Use a separate Work Function Impairment Form. (Exhibit "A")

g. Indicate recommended treatment and/or rehabilitation, if any. State whether the employee, the effects of whose injury, whether or not combined with the effects of a prior injury, whether or disability, if any, is permanently precluded or likely to be precluded from engaging in this or her usual and customary occupation or the position in which he or she was engaged at the time of injury.

h. Respond to all referral question and/or to questions and issues raised in referral reports.

## B. PSYCHOLOGICAL ASSESSMENT REPORT FOR PSYCHIATRIC DISABILITY AND GUIDELINES OF PSYCHOLOGICAL TESTING

(To accompany an Evaluation Report for Psychiatric Disability)

1. **Identifying information**
   a. Applicant's name, age, birthdate, phone number, and social security number
   b. Date of alleged injury or exposure
   c. Date last worked
   d. Description of alleged injury or exposure

2. **Referral information**
   a. Date of referral
   b Referral source: name and role in evaluation/litigation process
   c. Nature or referral and referral questions

3. **Behavioral observation and personal characteristics**
   a. Description of physical appearance, mode of dress
   b. Speech, hearing, vision, R/L handedness
   c. Other apparent physical cognitive or emotional impairments, including history of unconsciousness, high or protracted fever, seizure activity
   d. Literacy, educational level, and whether English is first language
   e. Ethnic origin, marital status, occupation, socioeconomic status
   f. Self-presentation of applicant by relevant observations, test scores, and history (Comment on such qualities as motivation, candor, spontaneity, reliability, consistency of performance, tendency to exaggerate or malinger, and presentation of self in an overly positive light.)

4. **Clinical interview** (Cf. Chapter I, Subchapter A, the Evaluation Report for Psychiatric Disability, sections 2-9, pages 4-6 ) Since this Psychological Assessment Report accompanies an Evaluation Report for Psychiatric Disability, a brief review of relevant history is sufficient.

5. **Records available/reviewed.** Including job descriptions and performance evaluations.
   (Identify as to before or after alleged injury/exposure.)

6. **Prior psychological assessment (from records).** List, including:
   a. Date

b. Examiner
c. Test (Include form used.)
d. Scores and interpretation

7. **Guidelines for psychological testing**

Psychological testing is an additional source of information which can be combined with other elements such as records review and clinical interview to arrive at opinions concerning diagnosis, symptom exaggeration and disability. Psychological testing includes self-administered inventories such as the MMPI which can be used to evaluate the clinical presentation of the patient. Psychological testing also includes the projective tests such as the Rorschach Test. Psychological testing also includes neuropsychological tests which are used to identify and measure strengths and weaknesses in cases of suspected organic brain disorder. If psychological testing is included as part of the evaluation, these guidelines are to be followed:

**a. Routine Screening Battery**
Time: 2 to 5 hours

**Purpose**: This category of psychological testing encompasses a routine Workers' Compensation case. This testing may be done in conjunction with the Initial Comprehensive Evaluation. The purpose of this testing is to evaluate potentially disabling psychological factors. This psychological testing will look at self-reported symptoms such as depression and anxiety. This type of testing may also explore such issues as personality and possible exaggeration of symptoms.

**Types of Tests Used:** This category of testing utilizes primarily self-administered questionnaires such as the MMPI and the MCMI. Other standard test measures which are appropriate and necessary may be utilized.

**Persons Authorized to do the Psychological Testing:** Psychiatrist, psychologists and registered psychological assistants with doctorate, within their respective areas of competence with respect to attained education, training, supervision and experience, are the individuals who will interpret psychological tests. Psychiatrists and psychologists are responsible for the production of psychological reports.

**b. Complex Psychological Testing**
Time: 6 to 10 hours

**Purpose:** Here the referring evaluator who is conducting the Initial Comprehensive Examination requests more extensive psychological testing. Complex psychological testing gives an in depth view of the patient. Routine testing relying upon self administered inventories may be insufficient in cases where elaboration; reading, language and intellectual barriers; or confusional states exist. This level of testing can be used to explore more thoroughly issues of personality, cognition, and malingering and/or exaggeration.

**Types of Tests Used:** Here the psychological testing is more extensive. Projective tests such as the Rorschach Test may be used. More extensive personality testing may be utilized. The Wechsler Adult Intelligent Scale may be utilized. Other standard tests that are necessary and appropriate outside of these measures should be used.

**Persons Authorized to do the Psychological Testing:** Complex psychological testing utilizes a psychologist or a registered psychological assistant with doctorate who is supervised by a psychologist. When a registered psychological assistant is utilized in the administration or scoring of some of the tests, this is done under the direct supervision of a licensed psychologist. The licensed psychologist is responsible for interpretation of complex testing and the production of the psychological testing report.

**How to Request Complex Psychological Testing:** Complex psychological testing is done at the discretion of the evaluator doing the Initial Comprehensive Evaluation. In the body of the Initial Comprehensive Report the evaluator must document that complex psychological testing which goes beyond the usual routine screening battery is indicated. The justification for the more thorough battery must be detailed by the disability evaluator in his/her report.

c. **Neuropsychological Testing**
Time: 8 to 15 hours

**Purpose and Criteria Warranting Testing:** There are instances where the neuropsychological approach to assessment is indicated to help determine the role an organic mental disorder plays in disability. This is not a routine type of evaluation in Workers' Compensation cases and, when used, must be justified by the report. Typically there is a specific head injury, toxic exposure or some other situation that raises the issue of organic brain syndrome. Here the patient often registers impairment on the mental status examination and there is a history consistent with serious cognitive dysfunction.

A condition such as depression, anxiety, and chronic pain may cause a complaint of cognitive difficulties but this type of situation would not necessarily warrant neuropsychological testing. The mere report from the patient that there is difficulty with recent memory in and of itself cannot justify extensive neuropsychological testing.

**Types of Tests Used:** This category of testing utilizes a number of cognitive tests in the form of an organic testing battery. Tests such as the Luria Nebraska or the Halstead Reitan may be utilized by are not always required in a neuropsychological testing evaluation. The neuropsychological test battery may include other standard measures such as the MMPI beyond those used exclusively for assessing cognition.

**Persons Authorized to do the Psychological Testing**: This type of evaluation is done by a clinical psychologist with experience in evaluation organic mental disorders. A registered psychological assistant with doctorate may participate in the test administration and data interpretation.

8. **Evaluation procedures.** Refers to Chapter I, subchapter A, section 11, "Ranges for Psychological testing". List instruments when used in the following order. Indicate date and total administration time. (This is a reporting format and does not necessarily imply that procedures be administered in this order.)
   a. Objective tests measuring general cognition
   b. Neuropsychological tests if indicated
   c. Objective (standardized and normed) tests relating to personality and emotional state
   d. Self-report inventories relating to emotional state
   e. Projective devices
   f. Interview

9. **Results and discussion**
   a. Describe assessment findings, providing test scores and documentation sufficient to permit other psychological examiners to review the issues raised and opinions rendered. (Indicate if computer scored/interpreted and give score.) Relate test findings to observations and relevant history, with emphasis on the vocational sphere.

   b. Relate all assessment findings to DSM-III diagnosis on Axis I, Axis II and, when appropriate, Axis III. (Note: It is inappropriate for a psychologist to offer independent Axis III diagnosis.)

   c. Current findings and inferences relative to work place injury and job-related impairments. (The psychologist should follow "XV. Summary and Conclusions" in the Evaluation Report for Psychiatric Disability, but should include the additional information below.)
      (1). Distinguish between transient/situational conditions and enduring/permanent condition.
      (2). Where appropriate describe and document with test findings and range and severity of psychological impairment with respect to ability to work in the same job or to compete on the open job market.
      (3). Describe and document with test findings what types of intervention are required to return applicant to the same job or to rehabilitate applicant for other employment, with amounts of time involved.

## Chapter II

## CLINICAL EVALUATION OF PERMANENT PSYCHIATRIC DISABILITY

In evaluating an applicant with an alleged psychiatric disability, the examiner should first decide: (1) whether or not there is any emotional or mental condition which handicaps the applicant in competing on the open job market, (2) whether or not this disability is to any degree work-related, and (3) whether or not the disability is permanent and stationary, that is, whether or not the applicant can receive further benefit from treatment at this time. If it is the examiner's opinion that there is psychiatric disability which is to some degree work-related and that maximum benefit from treatment has been reached, then the applicant may be evaluated for permanent psychiatric disability. (California Casualty Ins. Co. v. W.C.A.B. (Jackson) (1985) 50 C.C.C. 262, 265; 167 Cal. App. 470, 476; 213 Cal. Rptr. 420) The examiner will proceed to evaluate the extent and nature of the disability and to describe the prognosis according to the guidelines presented in this section. The examiner will indicate whether or not actual events of employment were responsible for at least 10% of the total causation from all sources contributing to the psychiatric injury.

The guidelines ask the examiner (1) to diagnose the applicant according to DSM-III[2] to evaluate the applicant's ability to perform specific work functions, and (3) to provide information concerning the applicant's prognosis. To assist the examiner and the court, schedules for summarizing relevant information are provided. The values in these schedules are not substitutes for the discussion described in the Summary and Conclusions, Chapter I, A., 16. They are values to be used in documenting or supporting the conclusions.

### A. Evaluation of the Nature and Severity of Impairment

This subchapter provides the examiner an outline with which to describe the nature and severity of the applicant's mental or emotional impairment. This subchapter provides for Axis I and Axis II diagnoses, and also an Axis III diagnosis when appropriate. The examiner should indicate whether or not these diagnoses were occupationally disabling prior to the alleged injury and support the opinion.

This subchapter also provides that the examiner list all symptoms related to the Axis 1 diagnosis or diagnoses and to state whether they are constant, intermittent, or occasional. next the examiner is asked to evaluate the level of impairment in the applicant's ability to perform eight work functions. The Work Functions Impairment Form (Exhibit "A") provides a convenient way to summarize this information. The eight

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2 FN2 The use of Diagnostic and Statistical Manual of Mental Disorders 3rd Edition (DSM-III) includes referral to all subsequent revisions and/or editions as they become available and appropriate to the evaluation.

work functions are listed in Exhibit "B" hereto. The evaluation is performed as if there were no question of apportionment, even when apportionment is suggested by the examiner's assessment of the etiology.

1. DSM-III diagnosis
   a. Axis I
   b. Axis II
   c. Axis III

2. List all disabling symptoms and state whether each is constant, intermittent, or occasional. ("Intermittent" means present half time; "occasional", less than half the time.)

3. Using the levels defined in a.(1)-a(5) below, describe the extent to which disabling symptoms lead to impairment on the eight work functions shown in b. below.
   a. Level of impairment:
      (1). Minimal (discomfort, but not disabling)
      (2). Very slight (detectable impairment)
      (3). Slight (noticeable impairment)
      (4). Moderate (marked impairment)
      (5.) Severe (unable to perform work function)
   b. Work function: Document those symptoms which impair each of the following work functions and the levels of impairment on the Work Function Impairment Form on page . (See Exhibit "B" for descriptions of the work functions.):
      (1). Ability to comprehend and follow instructions
      (2). Ability to perform simple and repetitive tasks
      (3). Ability to maintain a work pace appropriate to a given workload
      (4). Ability to perform complex or varied tasks
      (5). Ability to relate to other people beyond giving and receiving instructions
      (6). Ability to influence people
      (7). Ability to make generalizations, evaluations or decision without immediate supervision
      (8). Ability to accept and carry out responsibility for direction, control, and planning

Information on severity of symptoms in referenced in 2 above will assist the Court to determine the level of severity of impairment of work function (factors of disability).

## WORK FUNCTION IMPAIRMENT FORM

| WORK FUNCTION | LEVEL OF IMPAIRMENT | SUPPORTING DATA (Cite Findings) |
|---|---|---|
| 1. Ability to comprehend and follow | | |
| 2. Ability to perform simple and repetitive tasks | | |
| 3. Ability to maintain a work pace appropriate to a given work load | | |
| 4. Ability to perform complex or varied tasks | | |
| 5. Ability to relate to other people beyond giving and receiving instructions | | |
| 6. Ability to influence people | | |
| 7. Ability to make generalizations, evaluations or decisions without immediate supervision | | |
| 8. Ability to accept and carry out responsibility for direction, control and planning | | |

Note:

When completing this form consideration is to be given to Descriptions of Work Functions - Functional Manifestations (see Exhibit "B").

**EXHIBIT "A"**

## DESCRIPTIONS OF WORK FUNCTIONS
## FUNCTIONAL MANIFESTATIONS

The following is a list of the functional manifestations of each of the eight work functions to be evaluated. The examiner should consider these factors in evaluating each work function, using clinical observations and objective supporting data.

1. **Ability to comprehend and follow instruction**
   Consider:
   the ability to maintain attention and concentration for necessary periods;
   the ability to understand written or oral instructions; and
   the ability to do work requiring set limits, tolerances or standards.

2. **Ability to perform simple and repetitive tasks**
   Consider:
   the ability to ask simple questions or request assistance;
   the ability to perform activities or a routine nature; and
   the ability to remember locations and work procedures.

3. **Ability to maintain a work pace appropriate to a given work load**
   Consider:
   the ability to perform activities within a schedule, maintain regular attendance and be punctual; and
   the ability to complete a normal work day and/or work week and perform at a consistent pace.

4. **Ability to perform complex and varied tasks**
   Consider:
   the ability to synthesize, coordinate, and analyze data; and
   the ability to perform jobs requiring precise attainment of limits, tolerances or standards.
   the ability to perform a variety of duties, often changing from one task to another of a different nature without loss of efficiency or composure.

5. **Ability to relate to other people beyond giving and receiving instructions**
   Consider:
   the ability to get along with co-workers or peers;
   the ability to perform work activities requiring negotiating with, explaining, or persuading; and
   the ability to respond appropriately to evaluation or criticism.

**EXHIBIT "B", PAGE 1 OF 2 PAGES**

6. **Ability to influence people**
Consider:
the ability to convince or direct others;
the ability to understand the meaning of words and to use them appropriately and effectively; and
the ability to interact appropriately with people.

7. **Ability to make generalizations, evaluations or decisions without immediate supervision**
Consider:
the ability to recognize potential hazards and follow appropriate precautions;
the ability to understand and remember detailed instructions;
the ability to make independent decisions or judgments based on appropriate information; and
the ability to set realistic goals or make plans independent of others.

8. **Ability to accept and carry out responsibility for direction, control and planning**
Consider:
the ability to set realistic goals or make plans independently of others;
the ability to negotiate with, instruct or supervise people; and
the ability to respond appropriately to changes in the work conditions.

## EXHIBIT "B", PAGE 2 OF 2 PAGES

NOTE: Authority cited: Section 139.2(j)(4), Labor Code. Reference: Sections 139.2(j)(4) and 4628, Labor Code.

HISTORY

1. New section filed 12–7–93; operative 1–6–94 (Register 93, No. 50).
2. Change without regulatory effect amending section filed 3–15–94 pursuant to title 1, section 100, California Code of Regulations (Register 94, No. 11).
3. Change without regulatory effect amending section filed 9–7–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 36).
4. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

### § 44. Method of Evaluation of Pulmonary Disability.

The method of measuring the pulmonary elements of disability shall be as set forth below in the "Guidelines for Evaluation of Pulmonary Disability" as adopted by the Industrial Medical Council on December 4, 1997.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
INDUSTRIAL MEDICAL COUNCIL
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
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San Francisco, CA 94128-8888

# Guidelines for Evaluation of Pulmonary Disability
Adopted December 4, 1997

## I. PURPOSE

This document defines the following:

1. Criteria to be used for establishing the presence or absence of respiratory impairment;
2. Criteria for selecting appropriate use of laboratory data and for identifying inappropriate testing;
3. A method for the quantitative and objective assessment of the extent of respiratory disability.
4. Guidelines regarding the content of medical-legal reports for assessing respiratory disability.

## II. GENERAL PRINCIPLES

### A. Approach

1. Evaluation of subjective (dyspnea) must be subject to collateral evidence and the internal consistency of the history. The dyspnea criteria are used for rough estimates and cannot by themselves establish a level of impairment without one or more of the physiologic determinants listed below in the same class of impairments.

2. In any evaluation, the physician shall progress from the simple to the more complicated. Start with the history and physical examination, follow with basic pulmonary function tests, and then proceed as appropriate to more complicated procedures. Some patients will require only spirometry, but most will require determination of diffusing capacity for carbon monoxide ($D_{CO}$), and many will need lung volume measurement.

Refer to Chapter 5, "The Respiratory System in "Guides to the Evaluation of Permanent Impairment" of the American Medical Association, 4th Edition, 1993. These guidelines shall be used in conjunction with the determinants discussed below.

B. Evaluation Tests

1. Spirometry

a. Spirometry must be performed according to the 1994 American Thoracic Society Recommendations. Equipment, calibration, and techniques must be according to these American Thoracic Society criteria.

b. A spirogram representing the best effort of at least three attempts is used to calculate $FEV_1$ and FVC. The two best efforts must be within 5% of each other, or additional efforts are needed. Hard copies of the spirogram must be incorporated in the report or maintained by the physician for review if needed.

c. If wheezing or other evidence of bronchospasm is present or if the $FEV_1/FVC$ ratio is reduced, perform tests before and after bronchodilator. If albuterol, metaproterenol or isoetharine is used, wait 10 minutes or more before testing. The examiner shall comment on what treatment program the subject has been on during the two months before the testing.

A diagnosis of asthma must be supported by objective evidence of airway hyperresponsiveness such as abnormally low (below the 95% confidence level) $FEV_1$ or $FEV_1/FVC$ ratio, which is reversible, or a positive methacholine challenge test. (Asthma may be present and the $FEV_1$ and $FEV_1/FVC$ ratio not reversible, if examinee is on bronchodilator at time of testing.) If FEF 25-75% is abnormal (below the 95% confidence level) in a nonsmoker, then asthma may be present, but additional testing such as methacholine or histamine challenge may be performed. Wherever possible, the patient should discontinue aerosol bronchodilator treatment at least 12 hours before testing.

d. Compare test results to the tables of predicted normal values in the Chapter 5 of Guides to the Evaluation of Permanent Impairment of the American Medical Association, Fourth Edition, 1993. Where $FEV_1$ or FVC value is outside the 95% confidence interval, it is considered abnormal. Where $FEV_1/FVC$ value is less than 0.70 or outside the 95% confidence interval, it is considered abnormal.

e. Analysis should be based on the $FEV_1$, FVC, the $FEV_1$/FVC ratio.

f. Tracings and all data must be submitted with the report or maintained on file for review.

2. Diffusing Capacity

a. Single-breath diffusing capacity for carbon monoxide ($D_{CO}$) shall be performed routinely unless asthma has been established as the sole cause of dyspnea or spirometry alone establishes severe impairment.

b. $D_{CO}$ measurement must be done according to the 1994 American Thoracic Society Epidemiology Standardization Project Recommendations.

c. $D_{CO}$ tracings and all data must be submitted with report or maintained on file for review.

d. Either Cotes, Crapo, or methods published in peer-reviewed journals for predicted values may be used.

e. $D_{CO}$ less than 50% predicted indicates significant impairment. If spirometry is normal, exercise testing may be indicated to determine the extent of impairment.

f. When the $D_{CO}$ is between 50-70% of predicted impairment, evaluation may require exercise testing.

3. Exercise Testing

a. The minimal requirements for performance of an adequate pulmonary exercise test include the following:

(1) Supervision and interpretation by a physician thoroughly trained in pulmonary physiology and with special expertise in clinical pulmonary exercise physiology.

(2) A standardized quantifiable exercise system (either a treadmill or a bicycle ergometer).

(3) Ability to measure heart rate, respiratory rate, minute ventilation, and oxygen consumption following appropriate quality control and validation procedures. (Note: oxygen consumption must be measured, not estimated, from the level of exercise.)

(4) Equipment for measuring arterial oxygenation by in-dwelling arterial catheter or pulse oximetry, and personnel appropriately qualified in its use. The blood gas measurements (pH, $PCO_2$, $PO_2$) must be made in a laboratory which successfully passes a professional society's proficiency testing program annually (e.g., program of California Thoracic Society or College of American Pathologists). In many instances, properly performed oximetry (to measure $O_2$ saturation of hemoglobin) can be used as a substitute for measurement of arterial $PO_2$.

(5) The exercise testing must be performed with cardiac monitoring in a medical facility capable of

handling any complications and, in addition, capable of performing resting lung studies. An experienced physician must be on site.

b. Written interpretation must include answers to the following questions:

(1) Was the test technically satisfactory?

(2) Describe the maximal exercise level achieved as the predicted percent of both heart rate and maximum oxygen consumption ($VO_2max$). Include in the report the source of the prediction values used.

(3) What is the estimate of the maximum exercise level which patient can sustain? Include a statement or literature reference which provides the rationale on which this prediction is based.

(4) If limitation of exercise is found, what is the cause (pulmonary or non-pulmonary)? In all cases, include a description of the specific symptoms which limited the maximal level of exercise.

c. Indications for Exercise Testing

(1) If spirometry indicates Class 2 or Class 3 impairment (See Table 2) but there is dyspnea two levels higher (Class 4 or Class 5, respectively) and the dyspnea is not explained by tests for episodic bronchospasm, exercise testing may be indicated.

(2) If spirometry establishes Class 4 or Class 5 impairment, exercise testing is contra-indicated.

(3) If tests for airway hyperresponsiveness, exercise induced, antigen induced, or irritant induced episodic bronchospasm are positive and if the degree of impairment can be calculated from spirometric data demonstrating the most severe level of bronchospasm reached during the study, exercise testing is usually not needed since the most severe level of impairment in the presence of the inciting agent is known. The physician must provide specific information on the nature of the bronchospasm inducing agent and its prevalence in the job market.

(4) Exercise testing may be needed in some patients with episodic dyspnea to determine if exercise induced bronchospasm is present. If done for this purpose, spirometry must be performed immediately before and after the exercise.

(5) If spirometry and $D_{CO}$ are normal but there is marked dyspnea and there are significant clinical findings such as positive x-ray examinations showing interstitial disease (i.e., ILO category 1/0 or greater) or hypoxemia ($PO_2$ less than 80, according to the Guidelines for the Use of ILO Int'l Classification

of Radiographs of Pneumoconioses, Geneva: ILO, 1980. Occupational Health and Safety Services No.22 Revised), exercise testing may be needed.

4. Airway Hyperresponsiveness Testing

a. Tests of airway hyperresponsiveness are indicated when asthma is a consideration. This is particularly relevant when the patient complains of episodic dyspnea.

b. In such instance, if the $FEV_1/FVC$ ratio is reduced and the $FEV_1$ is less than 60% of predicted, an aerosolized bronchodilator shall be administered. A consistent response (based on accurate testing and maximal patient effort) with greater than 15% increase in $FEV_1$ indicates that airway reactivity is present.

c. If the $FEV_1/FVC$ ratio is normal or reduced, and the $FEV_1$ is greater than 70% of predicted, a provocation challenge test shall be considered if the clinical history suggests the presence of possible disability due to asthma. In such instances, a methacholine challenge or histamine challenge test shall be performed. Such tests shall only be performed by physicians with experience in their conduct. These tests require careful attention to technical detail. In particular, establishment and maintenance of precise concentrations of the methacholine agent is requisite. False positive and false negative tests may occur if not

performed well, and therefore spirometry tracings must be retained for review.

d. Additional information about the specific techniques of the methacholine challenge may be determined from standard references.

5. Treatment

A careful history of the nature of ongoing treatment for pulmonary conditions must be obtained by the physician performing the evaluation. It is particularly important in cases of asthma to express an opinion about whether optimal therapy is being provided. If the examining physician feels that adequate therapy is not provided, this should be stated explicitly and suggested alternatives should be indicated. In addition, if the examining physician believes that the patient is not complying with treatment, this should be stated.

The National Institute of Health guidelines ("Medical Care", Vol.31. No.3, pp MS20-MS28, Supplement, 1993, "The National Asthma Education Program: Expert Panel Report Guidelines for Diagnosis and Management of Asthma") for the treatment of asthma shall be used as a reference standard for determining the adequacy of treatment. In general, a patient shall be treated with the minimal drug which is necessary to maintain control of the asthma.

Additional guidance is available on the 1993 American Thoracic Society statement on Disability and Impairment from Asthma.

6. Chest Radiography

Chest radiographic examinations are an essential part of most pulmonary disability evaluations. For evaluating possible pneumoconioses (dust diseases of the lung), it is essential that the radiographs be of high technical quality. Over or under penetration can lead to under or over diagnosis of the presence of pulmonary abnormality. The recommendations of the International Labor Organization (ILO) Committee on chest radiography, Guidelines for the Use of ILO Int'l Classification of Radiographs of Pneumoconioses, Geneva: ILO, 1980. Occupational Health and Safety Services No.22 Revised), shall serve as the reference guideline. The physician interpreting the radiographs must be experienced in evaluating occupational and environmental lung disease (e.g., such as by being an A or B reader as certified by the National Institute for Occupational Safety and Health).

CAT scans are not routinely necessary in the evaluation of dust exposed individuals. Their use shall be limited to those situations where a specific indication exists (e.g., to radiographically evaluate the parenchyma in the presence of extensive pleural abnormality). CAT scans are not indicated for the evaluation of individuals who have been dust exposed but have normal lung function and no symptoms. They are required only if finding the deviation from complete normality will affect the ratable disability.

## PULMONARY DISEASE: BASIC STEPS

**1. COLLECT BASIC DATA**

- HISTORY (See Table 1)
- SPIROMETRY
  - ↓ FEV1/FVC Ratio or Wheeze → Repeat Post Bronchodilator (use best)
- DIFFUSING CAPACITY FOR CO (UNLESS DX IS ASTHMA)
- CHEST RADIO GRAPH

**2. IS ASTHMA LIKELY?**

If Likely, see Asthma Protocol (p.17)

**3. PRELIMINARY IMPAIRMENT CLASSIFICATION (See Table 2)**

**3a. SPECIAL TESTS**

- **EXERCISE TESTING**
  - -If Class 2 or 3 Impairment (Table 2) with unexplained dyspnea 2 classes greater
  - - Not Needed for Classes 1, 4, 5
  - - Not Needed if Asthma is Dx
- **Airway Hyper-Responsiveness Tests**

**4. FIND EQUIVALENT LIFT PRECLUSION (See Table 3)**

ASTHMA DISEASE: BASIC STEPS

**1. CONFIRM DIAGNOSIS**

| FEV1 | FEV1/FVC Ratio | | | |
|---|---|---|---|---|
| < 60% pred | ↓ | → Repeat Spiro after Bronchodilator | → | >15% increase: asthma likely |
| > 70% pred | ↓ or Normal | → Methacholine Challenge Test | → | PC 20≤ 8: asthma likely |

**2. RATE IMPAIRMENT WITH Table 2**

(based on POST bronchodilator spirometry results)

**3. MODIFY RATING FOR ASTHMA (Table 4)**

Medication use → 0-2 class ↑

Airway Hyper-Responsiveness
Methacholine challenge,

↓ FEV1 with exercise*

↑ FEV1 Post Bronchodilator

Sensitization to Specific Chemical ---- Specific Preclusions

*test only if definite exercise induced symptoms are seen

**Table 1. Minimal Historical Information To Be Collected By Examining Physician**

| | |
|---|---|
| Dyspnea | Frequency<br>Severity: At rest, walking on level, etc.<br>Constant or Intermittent |
| Wheezing | Patient's description<br>Associated with dyspnea? |
| Cough | Frequency<br>Severity: e.g., paroxysmal<br>Precipitants |
| Sputum Production | Frequency<br>Timing: A.M./all day, etc.<br>Duration: months/year<br>Amount<br>Quality (Thick/thin, purulence) |
| Sleep Problems | Snoring |
| Respiratory Infections | Frequency<br>Severity |
| Medically Diagnosed Lung Disease | Asthma<br>Pneumonia<br>Other |
| Allergic History | Hay fever<br>Allergic Asthma |
| Limitations Due To Dyspnea | Work<br>Home<br>Other |
| SMOKING | |
| Current Status | |
| History | Starting<br>Average Intensity (packs/day)<br>Type: cigarette, pipe, cigar<br>Use of filters |
| Periods Of Nonsmoking | List years of nonsmoking or reduced smoking.<br>If an ex-smoker, list when stopped. |
| Cessation Efforts | Type<br>Success? |
| Environmental Tobacco | Worksite<br>Home (e.g., smoking spouse) |

| Workplace Questions | |
|---|---|
| Chemical Exposures | Name<br>Level<br>Duration |
| Dust Exposure | Asbestos<br>Silica<br>Other |
| Mitigating Factors | Respirator Use<br>Exhaust Ventilation |
| Special Exams | X-ray<br>Spirometry |
| **Respiratory Medical History** | |
| Hospitalizations | Date<br>Location<br>Reason |
| Chest Trauma | |
| Medical Diagnoses | |
| Tuberculosis History | Active Disease<br>PPD Status |
| Respiratory Medications | Physician Prescribed<br>Over The Counter<br>(including inhalers) |

Table 2. Impairment Schedule

CLASS 1

The subject may or may not have dyspnea. If dyspnea is present, it is for non-respiratory reasons or it is consistent with the circumstances of activity.

OR

Tests of ventilatory functions (FVC, $FEV_1$, $FEV_1/FVC$ ratio as percent) above the lower limit of normal for the predicted value is defined by the 95% confidence interval. (See Chapter 5, "The Respiratory System" in Guides to the Evaluation of Permanent Impairment of the American Medical Association, 4th edition, 1993 for methods of calculation.)

OR

$VO_2$ Max greater than 25 ml/(kg-min).

---

CLASS 2

Dyspnea with fast walking on level ground or when walking up a hill; patient can keep pace with persons of same age and body build on level ground but not on hills or stairs.

AND

Tests of pulmonary function (FVC, $FEV_1$, $FEV_1/FVC$ ratio as percent) below the 95% confidence interval but greater than 60% predicted for FVC, $FEV_1$, and $FEV_1/FVC$ ratio.

OR

$VO_2$ Max between 20-25 ml/(kg-min).

---

CLASS 3

Dyspnea while walking on level ground with person of the same age or walking up one flight of stairs. Patient can walk a mile at own pace without dyspnea, but cannot keep pace on level ground with others of same age and body build.

AND

Tests of ventilatory function (FVC, $FEV_1$, $FEV_1$/FVC ratio as percent) less than 60% predicted, but greater than:

50% predicted for FVC,

40% predicted for $FEV_1$,

40% actual value for $FEV_1$/FVC ratio.

OR

$VO_2$ Max between 15-20 ml/(kg-min).

---

CLASS 4

Dyspnea after walking more than 100 meters at own pace on level ground.

AND

Tests of pulmonary function (FVC, $FEV_1$, $FEV_1$/FVC ratio as percent):

less than 50% predicted but greater than 40% for FVC;

less than 40% predicted but greater than 30% for $FEV_1$;

less than 40% predicted but greater than 30% for $FEV_1$/FVC;

30-40% predicted for $D_{CO}$.

OR

$VO_2$ Max between 10-15 ml/(kg-min).

---

CLASS 5

Dyspnea after walking less than 30 meters at own pace or dyspnea at rest.

AND

Tests of ventilatory functions (FVC, $FEV_1$, $FEV_1/FVC$ ratio as percent):

less than 40% for FVC;

less than 30% for $FEV_1$;

less than 30% for $FEV_1/FVC$;

less than 30% predicted for $D_{CO}$.

OR

$VO_2$ Max less than 10 ml/(kg-min).

NOTES:

1. To assess lung function for permanent rating purposes, the patient must be receiving optimal therapy.
2. Lung function testing must conform to 1994 American Thoracic Society Epidemiology Standardization Project Recommendation.
3. If oxygen consumption is determined, it must be directly measured, not estimated by treadmill speed and grade (as is commonly done in cardiac stress testing).

## Table 3. Impairment Table

| CLASS | $VO_2$ max ml/(Kg-min) | Peak METs | Preclusion Equivalent |
|---|---|---|---|
| 1 | >25 | >7 | None |
| 2 | 20 to 25 | 5.6 - 7 | Very heavy lifting |
| 3 | 15 to 20 | 4.2 - 5.6 | Heavy lifting |
| 4 | 10 to 15 | 2.8 - 4.2 | Light work only |
| 5 | <10 | <2.8 | Sedentary work only |

Table 4

Modifying Factors For Asthma

| | | |
|---|---|---|
| **Medication Need (Documented)** | | |
| Daily mandatory bronchodilator or anti-inflammatory medication | | 0-1 class |
| High dose inhaled bronchodilator (>800 ug beclomethasone or equivalent daily) Plus occasional course of systemic steroid (e.g., 1-3/year) | | 0-1 class |
| Regular systemic steroid use (e.g., >20 mgm prednisone/day | | 0-2 class |
| Noncompliance with proper treatment | subtract | 0-1 class |
| **Airway Hyperresponsiveness** | | |
| Methacholine Challenge $PC_{20}$ <8 mgm | | 0-1 class |
| <0.5 mgm | | 0-2 class |
| Exercise Induced Bronchospasm - Decline in $FEV_1$ with exercise >20% | | 0-1 class |
| >40% | | 0-2 class |
| Post Bronchodilator Increase in $FEV_1$ >20% | | 0-1 class |
| >30% | | 0-2 class |
| **Sensitization to Specific Workplace Chemical** Preclusion from a job with exposure to the chemical | | |

*Modifying factors for asthma patients are applied because the routine approach may underestimate disability. The single most significant factor should be used.

III. PROCEDURES FOR ASSESSMENT

Clinical assessment for establishing disability under the Workers' Compensation system will proceed in an organized stepwise fashion. First, the history obtained from the patient shall include description of the presence or absence of symptoms shown in Table 1. For each symptom shown, the date of onset, previous severity, and current severity shall be described. Second, the evaluating physician shall personally obtain a history from the patient of the nature of work and possible chemical exposures. In addition, the physician shall personally inquire about any mitigating factors such as the use of respirators or industrial ventilation. Where appropriate, information obtained about exposures from the patient shall be supplemented by industrial hygiene or other information. Third, the physician shall personally obtain a history of cigarette smoking, including past and current practices. Other tobacco use shall also be determined. Fourth, the physician shall ask about non-occupational exposures (e.g., pets, hobbies with chemical exposure). Fifth, a careful history of current and previous treatment for pulmonary conditions shall be obtained by the physician. Sixth, the physician shall perform a careful physical examination. Seventh, the physician shall choose laboratory testing based upon the nature of exposures, the symptoms, and the examination. Guidelines for the utilization of such testing were presented in Section II.

## IV. ASSESSMENT OF IMPAIRMENT AND DISABILITY RATING

### A. General Approach

The available clinical information and laboratory tests, particularly pulmonary function tests, shall be integrated into an assessment of disability. Tables 3 through 4 provide guidelines for this.

Based upon the physiologic findings, a patient is placed into one of five classes. If post-bronchodilator testing is performed, the best of the pre-bronchodilator or post-bronchodilator test results are used for classification. (Asthma is considered subsequently.) Because of the excellent reliability of properly performed pulmonary function testing for assessing impairment, symptoms alone (e.g., shortness of breath) do not warrant classification into a class indicating disability. However, the presence of dyspnea disproportionate to the corresponding physiologic findings indicates the need to consider more careful evaluation (e.g., exercise testing, methacholine challenge testing, search for a nonpulmonary explanation of dyspnea, or psychosocial evaluation).

Table 2, derived largely from the 1993 AMA Guides to Permanent Impairment, 4th Edition, assigns individuals to physiologic classes. Table 3 interconverts the classes to typical disability impact terms. The data have been derived to be consistent with Workers' Compensation recommendations for cardiac disability in the State of California. For each class, the typical corresponding maximum attainable oxygen consumption measurement is provided. For disability rating it is assumed that 45% of peak attainable oxygen consumption can be sustained throughout the workday. In many cases the sustainable oxygen consumption can be estimated from the

bona fide pulmonary function testing. Although lifting ability is not directly determined by lung function, the Workers' Compensation system uses a lifting base terminology. Therefore, a "preclusion equivalent" is included in Table 3. The "preclusion equivalent" is designed to interconvert these ratings to the terminology typically used in Workers' Compensation evaluations.

B. Special Consideration for Asthma Evaluation

Unfortunately, physiologic testing alone may not, in some instances, provide complete information. For example, physiologic testing does not provide information on the impact of regular usage of medication. Table 4 provides a list of such modifying factors and the effect on the impairment schedule listed in Table 2. These must be considered in addition to the physiologic data.

Of particular importance is bona fide occupational asthma due to sensitization to a specific workplace chemical (e.g., TDI). An individual who has true sensitization shall be considered permanently disabled for any job which involves exposure to that agent. Numerous research studies have demonstrated that the diagnosis of true sensitization chemical specific occupational asthma is difficult, and there is considerable misdiagnosis. Because of the great impact on the individual involved, such diagnoses shall be made only by physicians with particular training and expertise in sensitization occupational asthma.

Asthma is particularly difficult to evaluate because the extent of disability depends upon the adequacy of treatment. Therefore, Table 4 provides supplemental guidelines for assessing asthmatics. Prior to use of this, the

diagnosis itself must be firmly established by one of the following two methods:

a. Abnormal $FEV_1$ with a greater than 15% increase after aerosolized bronchodilator administration. (Note, this must be done extremely carefully and well documented to avoid false positives.)

b. A methacholine challenge test showing a $PC_{20}$ of less than 20 milligrams.

In Table 4, the need for medication may be considered an indication of severity of disease. In such instances, the need for medication must be carefully documented in order to assure that the patient is receiving the minimal medication necessary to maintain control of asthma. To make such an assessment, the evaluation physician must be skilled in the treatment of asthma. The National Institute for Health Guidelines "Medical Care", Vol.31, No.3, pp MS20-MS28, Supplement, 1993, "The National Asthma Education Program: Expert Panel Report Guidelines for Diagnosis and Management of Asthma" may be helpful as a reference standard.

## PULMONARY DISABILITY EVALUATION (IMC)

The following pages are offered as an evaluation algorithm of injured workers with pulmonary disability.

- ALGORITHM PROVIDES A STEPWISE APPROACH
- ALGORITHM IS FOR GENERAL GUIDANCE ONLY
- SEE "GUIDELINES FOR EVALUATION OF PULMONARY DISABILITY" approved by IMC 12/4/97

NOTE: Authority cited: Section 139.2(j)(2), Labor Code. Reference: Sections 139.2(j)(2), 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 5-23-94; operative 6-22-94 (Register 94, No. 21).
2. Amendment of section and NOTE filed 6-19-98; operative 7-19-98 (Register 98, No. 25).
3. Change without regulatory effect amending section filed 7-12-2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

### § 45. Method of Evaluation of Cardiac Disability.

The method of measuring the cardiac elements of disability shall be set forth below in the "Guidelines for Evaluation of Cardiac Disability" as adopted by the Industrial Medical Council on December 4, 1997.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

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# Guidelines For Evaluation Of Cardiac Disability
## Adopted December 4, 1997

SECTION I: SUGGESTED CLINICAL AND LABORATORY APPROACH TO CARDIAC DISABILITY EVALUATION

- A. General
- B. History and Physical
- C. Routine Laboratory Testing
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- E. Newer Modalities
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- H. Holter Monitor
- I. Coronary Angiogram

SECTION II: OBJECTIVE AND SUBJECTIVE FACTORS UTILIZED IN CARDIAC DISABILITY EVALUATION

- A. Work Level by Stress Testing
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- C. Pre-Injury Work Level
- D. Ejection Fraction
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- I. Previous Cardiac History Including Myocardial Infarction, Coronary Artery Bypass Surgery, or Coronary Angioplasty

SECTION III: DISABILITY EVALUATION SCHEDULE FOR THE HEART

## SECTION I: CLINICAL AND LABORATORY APPROACH TO CARDIAC DISABILITY EVALUATION

### A. General

The clinical and laboratory approach to cardiac disability evaluation in Workers' Compensation is essentially no different from any other detailed exhaustive medical consultation. The physician shall start with a comprehensive history and physical as detailed below. This is the cornerstone of any good exhaustive evaluation. Beyond that, a judicious and minimal number of tests must be utilized to arrive at a disability rating. It is not uncommon at all after a comprehensive history and physical that there will be no further testing necessary. On the other hand, it is often thought that other testing are required and they will be discussed in detail below. However, by no means does this imply that all these testings need to be done. The listed testing are merely a number of clinical and laboratory testings that are useful in different clinical circumstances in evaluating a cardiac patient. It is anticipated that in most cases an evaluation considering all the medical records, what tests have been done previously, the history, the physical, the electrocardiogram, and some form of exercise testing will be more than adequate in determining a disability rating. The additional testing listed shall be done only in the special circumstances described. When these additional testing are utilized, full explanation to the justification of the testing must be included so that the reviewing agencies or the reviewing physician can determine its reasonableness in reimbursing medical-legal costs.

Testing of any kind is not to be repeated more than every 6 month unless there is evidence of a change in the clinical condition. If a physician decides to repeat the testing in less than 6 months' time, he or she must explain the necessity of such repeated testing. The physician shall inform the applicant of any significant medical finding(s) which could impact on his or her health even though these findings may not be directly related to the cardiac claims.

B. History and Physical

The cornerstone of a comprehensive medical evaluation is the history and physical. The history shall consist of a complete detailed history of the industrial injury, occupational history of the present occupation as well as past occupations; medical history of all prior hospitalizations, treatments, surgeries, and medical illnesses; family history; history of habits such as smoking, drinking and the use of drugs; history of the current illness, the sequence of events, the present complaints as well as a complete list of all present medications.

When determining whether an occupational event is related to cardiac disability, the applicant shall be asked specifically why he or she feels the cardiac problem is related to the work. Complete details of the current illness shall be reviewed, including circumstances of the industrial event or events relating to the cardiac condition, any previous or similar episodes of the same type of event which might have occurred away from the job, prior to the job, or during previous jobs. A complete list of all doctors who have treated the applicant for the illness shall be obtained in order to facilitate obtaining medical records that have not always been obtained before.

A complete listing of all the complaints at the time of the examination as to the duration, degree and nature shall be included. This is especially important when listing subjective complaints of permanent disability in the final report. Details of temporary disability shall be recorded, including whether the patient is working, and what effect going back to the work had on the illness, if any, or, if not working, whether the patient plans to return to work. These details bear on the patient's ability to do the same type of work, or whether the patient is a qualified injured worker and thereby a candidate for vocational rehabilitation.

All medical records shall, to the extent possible, be obtained prior the evaluation. The evaluator must be familiar with the medical record and its salient features in order to better direct the questions and evaluation and better outline the issues to be evaluated.

A comprehensive detailed physical examination shall be performed. If part of the examination such as detailed neurological examination is to be omitted, it must be so

stated. Blood pressure shall be taken in supine and upright positions on both arms several times by the physician. Other physical findings especially germane to the cardiac examination such as fundoscopic examination, neck vein status, cardiac auscultation, and extremities' examination must be specifically mentioned and recorded.

C. Routine Laboratory Testing

Routine laboratory studies such as CBC, chemistry panel and urinalysis and thyroid functions, are generally useful in evaluating the general medical status of the patient. An electrocardiogram as well as a chest X-ray may be performed since they are relatively inexpensive and informative. Again as stated above, if any of this examination has been performed recently within 6 months, it must not be repeated unless indicated.

D. Stress Testing

Exercise stress testing is currently the most important and productive means of quantitating a worker's impairment. Protocols and guidelines for exercise testing on the treadmill utilizing the Bruce protocol and holding the front handrail and bicycle ergometer have been documented and quantitated. See Table 2 for comparison of exercise test standards.

Reports of stress testing to rate a worker's impairment shall include the following information:

1. Peak level of activity achieved, preferably expressed in METs (metabolic equivalents of oxygen consumption).
2. Any clinical signs or symptoms reported or observed.
3. Record of ectopic (ventricular or supraventricular) activity.
4. Specific EKG (ST segment and T wave) changes noted.
5. Accurate description of, and timing of development of, such symptoms as dyspnea, angina, ischemic ST segment change or arrhythmia.
6. Blood pressure response.

The end point of exercise testing shall be either to achieve maximum capability or to develop any of the following symptoms and signs noted below. If the examiner does submaximal testing, stopping at "90% of expected" for example, 10% shall be added to the

METs level calculated from the Bruce or other testing protocol tables. The examiner must specify which symptom(s) or sign(s) caused testing to be stopped and shall fully explain why cardiac impairment (rather than some other condition) caused testing to be stopped. If the test subject stops voluntarily before reaching what his or her physician considers maximum capability, the examiner shall state an opinion as to what the true testing end point should be, giving reasons. Significant sections of the tracing, including scale as well as technical description of the equipment used, shall be enclosed with the report.

The signs and symptoms indicating the end point shall be the following:

1. Onset of atrial fibrillation.
2. Onset of ectopic atrial tachycardia.
3. Progressive drop in heart rate as exercise continues, or if systolic blood pressure falls 10 mm below prior measured level as exercise continues.
4. Progressive ST segment elevation or depression.
5. Progressive widening of the QRS complex or PR interval.
6. PVCs with increasing frequency to the point of danger.
7. Ventricular tachycardia (3 or more consecutive beats).
8. Excessive blood pressure rise (230 mm Hg systolic or above).
9. Undue dyspnea: subjective evaluation by test subject that dyspnea is not acceptable (usually coupled with #10 below). The examiner must state whether the testing end point is or is not a valid measure of cardiac capability and give reason(s) for the opinion.
10. Undue fatigue: subjective evaluation by testing subject that fatigue is not tolerable (usually coupled with #9 above). The examiner must state whether the testing end point is or is not a valid measure of cardiac capability and give reason(s) for the opinion.
11. Feeling of faintness: subjective evaluation by test subject. The examiner shall state whether the testing end point is or is not a valid measure of cardiac capability and give reason(s) for the opinion.

12. Angina pain progressive to moderately severe: 3 or 4 on a scale of 4. The examiner shall state whether the testing end point is or is not a valid measure of cardiac capability and give reason(s) for the opinion.
13. Musculoskeletal pain or discomfort that limits continuance of the test: the end point in this event is not valid for the evaluation of cardiac impairment.

If pulmonary function testing is needed to rule out pulmonary factors contributing to decreased exercise tolerance, the physician shall include an explanation of its necessity.

E. Newer Modalities

In addition to stress testing, there are various newer modalities that can be very useful in the determination of disability. However, the physician performing and interpreting such testings shall have the appropriate training and experience. In addition, the physician shall be identified.

Stress testing done in conjunction with thallium-201 is a more sensitive tool in the diagnosis of coronary artery disease. Its sensitivity has been reported to range from 68% to 96% (average 84%), compared with a sensitivity of 60% to 70% for exercise EKG alone. The specificity of thallium scintigraphy has been reported to be between 65% and 100% (average 87%), which represents a modest improvement compared with the specificity of exercise EKG alone. Thallium scintigraphy is often done with SPECT (single photon emission computed tomography) which further increases the sensitivity. However, a stress test with thallium is costly and has the undesirable side effect of exposure to radiation. A total body radiation exposure associated with intravenous injection of 2mCi of thallium-201 is approximately 420 mrad; this amount is equivalent to that of approximately 30 chests X-rays. Thallium scintigraphy, however, is preferable to exercise EKG alone when the resting EKG shows a non-specific abnormality impairing interpretation of exercise EKG alone or when information on the probable reversibility (or nonreversibility) of apparently infarcted segment is needed to estimate the potential value of revascularization therapy. In the majority of cases of disability evaluation,

thallium testing is not necessary in determining the disability status, above and beyond what information that can be derived from a standard exercise test.

Technetium 99m sestamibi study is another form of studying perfusion of the heart. This radioactive study is similar to that of thallium 201. With a combined approach using both thallium and sestamibi 99m, one can decrease the acquisition time by 50%. The information derived from these newer techniques allows for both evaluations of ischemia and data similar to a first pass MUGA study. This particular technique is more expensive than thallium imaging, but is of shorter time and is useful when information regarding wall motion abnormality and ejection fraction is important as well as the degree and area of ischemia. This obviates the need for ordering a MUGA scan.

Adenosine or Dipyridamole thallium studies are newer modalities that allow studying perfusion abnormalities to the myocardium when the patient cannot perform a regular treadmill or bike testing. The physician shall order one of these studies only if it is important to make an absolute diagnosis of coronary disease and the patient is unable to perform a treadmill test or a bike test. These studies do not allow for functional disability evaluation but only provide information regarding the presence or absence of myocardial ischemia.

Echocardiography with stress test, with Adenosine, with Dipyridamole, or with Dobutamine have all been described. The information is that of wall motion abnormality indicating ischemia. Ejection fraction can also be measured. These techniques are somewhat less expensive than radionuclear studies, but require an experienced technician to obtain a satisfactory study.

F. Echocardiogram

Echocardiogram is a useful tool in determining left ventricular function, chamber size, wall thickness, valvular anatomy and function, and flow pattern as determined by Doppler study. It is, therefore, useful in the determination of left ventricular

hypertrophy and left ventricular mass, diastolic dysfunction as demonstrated by abnormal flow pattern, and valvular heart disease such as mitral valve prolapse and aortic stenosis. Ejection fraction can also be accurately determined by echocardiogram.

G. MUGA Scan

Multi-Gated Equilibrium Radionuclide Angiography (MUGA) is a very accurate method in measuring ejection fraction. Rest and exercise equilibrium radionuclide angiography has been used in conjunction with or as an alternative to thallium scintigraphy in the detection of coronary artery disease. Regional or global abnormal wall motion at rest or during exercise can be accurately delineated with this technique. It is also a powerful predictor of subsequent adverse cardiac event. It is also useful in managing patients with stenotic or regurgitant valvular lesions.

H. Holter Monitor

Holter Monitoring is used in cases where arrhythmia is an issue. A 24-hour Holter Monitor is valuable in determining whether the applicant has a significant enough arrhythmia to be considered in the process of disability rating. For instance, there may be a very complex arrhythmia which would prohibit certain types of activities. High fidelity Holter Monitoring can also be done to determine whether patient has ischemia at various times of the day, which is not apparent on standardized exercise tests. It is especially useful in cases of coronary artery spasm. It is also useful in detecting silent ischemia.

I. Coronary Angiography

Coronary angiography is the gold standard for diagnosing coronary artery disease. It is also the gold standard for determining the best mode of therapy, be it angioplasty, bypass surgery, or medical treatment. It is generally not a testing which is done for disability evaluation. However, if the data is included in the medical record, it should be part of the material used in determining the coronary anatomy, the amount of myocardial damage, the amount of myocardium at risk, the amount of myocardium with akinesis or hypokinesis, or the ejection fraction. This shall be used as adjunctive material for disability evaluation. However, in general the coronary angiogram defines the

anatomy of the coronary arteries, not the functional aspects of the patient which are better determined by exercise testing, with or without other adjunctive studies such as thallium scintigraphy.

SECTION II: OBJECTIVE AND SUBJECTIVE FACTORS UTILIZED IN CARDIAC DISABILITY EVALUATION

A. Work Level By Stress Testing

The acceptable exertional level of sustained (8 hours per day) work relative to $VO_2$ max is 45%. The $VO_2$ max is estimated by the METs achieved at the end point of stress testing. When stress testing has been performed and the end point in METs has been determined, the physician can predict a "safe" effort for a given applicant with the above information in mind. If the testing end point is related to poor state of physical fitness, the maximal short-term (less than 15 minutes once a day) work exertion allowed shall be 80% of the end point level. If the subject is post-medical intervention for cardiac ischemia and is asymptomatic off the treadmill, the maximum short-term (defined as less than 15 minutes once a day) work exertion allowed shall be 80% of the testing end points in METs. If the testing end point is related to signs or symptoms of cardiac distress, as listed above, the maximum short-term (defined as less than 15 minutes once a day) work exertion allowed shall be 70% of the end point level. The sustained level of work exertion for activities through most of the work day for all patients shall be set at 45% of the testing end point in METs.

B. Work Level By History And Previous Testing

Occasionally stress testing is not feasible. However, work level can still be assessed in the following manner:

(1) Activity levels reported (consistent with clinical picture) translated into METs.

(2) Previous post-injury exercise testing.

(3) Documented level in post-injury exercise program in METs.

C. Pre-Injury Work Level

It is extremely important to determine the work level before the industrial injury. The pre-injury METs level found from one of the four following tests shall be used, in this order:

("Pre-injury METs level" is defined as that subsequent to the time the last of any known previous cardiac injuries became "permanent and stationary" and within the past five years preceding the instant injury).

(a) If available, use previous measurement by exercise testing.

(b) If (a) is not available, use previous capability by activity level within the past five years translated into METs.

(c) If (a) and (b) are not available, use previous capability level by non-work activities, translated into METs.

(d) If (a), (b) and (c) are not available, use mean standard METs for age and sex from Table 3.

D. Ejection Fraction

Ejection fraction may be used to estimate cardiac impairment in the absence of exercise testing or used to modify or validate medical opinion based on exercise testing. However, one may have normal resting ejection fraction even though impairment may still be present with major coronary occlusion. Therefore, ejection fraction is a supplement rather than an alternative to stress testing.

Cardiac catheterization with direct measurement of cardiac output and cardiac index is an accurate method of measuring ejection fraction, but must not be routinely done for Workers' Compensation evaluation. If it happens to have been done for other reasons, the information provided is valuable if the test was done at a time reasonably close to the Workers Compensation evaluation. The physician shall explain why the data/information is considered relevant or not. Ejection fraction is best measured accurately by echocardiogram or MUGA scan.

The following guidelines must be followed with regard to ejection fraction:

(a) More than 55% is in normal range, equivalent in cardiac performance to the normal for age and sex (see table 3).

(b) 45-50% is slight impairment.

(c) 30-45% is moderate impairment.

(d) Less than 30% is not quite severe impairment.

(e) Less than 20% is severe or total impairment.

E. Coronary Artery Spasm

Coronary artery spasm must be diagnosed by EKG or Holter Monitor with S-T segment changes up or down more than 1 mm. The Holter Monitor must be a high fidelity type and not a standard or event recorder. S-T segments are usually elevated with coronary spasm and depressed with ischemia, but this is not always the case. Significant sections of the tracing, including scale, as well as a technical description of the equipment used, shall be included with the report. There are several types of coronary artery spasm.

(1) Coronary artery spasm with pain, however the coronary arteries are normal. The relationship of this type of coronary artery spasm to emotional stress is somewhat controversial. It is not related to physical stress.

(2) Coronary artery spasm with pain, however there are coronary artery occlusions. This type of chest pain is related to physical and/or emotional stress.

(3) Myocardial ischemia without pain (silent ischemia). This is usually associated with fixed-lesion coronary artery disease. It is also related to emotional and/or physical stress.

The impairment due to coronary artery spasm shall be evaluated after appropriate treatment, which shall be continued. The evaluator must describe the level of emotional and/or physical stress producing spasm and offer an opinion regarding the extent of the

impairment, which shall be described in detail. The response to medication shall also be described. If the patient has nearly daily episodes not controlled with medication, it must be described as severe. If the patient has an episode every week or two despite medication, the impairment is described as moderate. If the patient has an occasional episode despite medication, the impairment is described as slight. If there are side effects from the medications, they shall be described in detail.

F. Arrhythmia

Arrhythmia should be evaluated after appropriate treatment and documented by data from EKG, Holter Monitor, event recorder, or data from stress testing.

Any significant arrhythmia which terminates a stress test should automatically establish the impairment level. Occasional unifocal PVCs with an otherwise normal heart represents no impairment unless the PVCs are related to stress or because of the patient's marked preoccupation with symptoms. Ventricular arrhythmia in the presence of ventricular dysfunction or valvular abnormality is associated with an increased risk of sudden death. Supraventricular arrhythmia may result in impairment depending on the extent of subjective symptoms.

G. Hypertension

Hypertension is defined as a resting blood pressure over 140/90. The blood pressure must be taken multiple times in both arms, in both a supine and an upright position. It is extremely important to establish that hypertension does exist. At times this requires multiple visits or 24-hour blood pressure monitoring.

Hypertension is "controlled" when the blood pressure is lower than 140/90 with reasonable medication ("reasonable medication" means no untoward side effects). Any side effects shall be described and appropriate restrictions due to side effects must be stated. When there are no significant side effects, this shall also be stated.

Blood pressure is "incompletely controlled" if there is an intermittent elevation of blood pressure higher than 140/90 with reasonable medication.

Blood pressure is "uncontrolled" when the diastolic pressure is always higher than 90, with or without reasonable medication. If without medication, treatment is needed, the applicant may or may not be temporarily, partially, or totally disabled.

In most cases, with effective treatment, hypertension can generally be controlled. The medication and dosage, as well as increases needed, must be noted. There is usually a period of time need to adjust medication until the blood pressure is controlled and side effects are tolerable. This period of time is generally no longer than three months. During this period of time, the patient may be temporarily, partially or totally disabled. If the period of time exceeds three months, an explanation must be provided.

In terms of impairment factors, the side effects of the controlling medication may on their own warrant a finding of disability. The signs and/or symptoms must be described and quantified, and their relationship to the medication explained. In testing for "controlled" hypertension, ambulatory blood pressure monitoring, or treadmill testing may show intermittent loss of control. The level of physical and emotional stress producing loss of control may be a basis for impairment rating. Such testing is ordered at the discretion of the physician. If there exists a "controlled" hypertension with end organ damage, the medical evaluator must describe and give the significance of the end organ damage. "Uncontrolled" hypertension may or may not be temporarily totally disabling.

H. Emotional Stress

The following guidelines shall be used for prophylactic restrictions from stress. All conditions the physician feels justify a preclusion from emotional stress such as those listed below, or any others the physician feels are significant, shall be under appropriate and continuing treatment. The reasons listed for prophylactic restriction below are examples. If prophylactic restrictions are suggested for reasons other than those listed below, the restriction must be justified by comparison with the examples given. The physician shall give examples of emotional stressors to be avoided by the patient. The physician shall be as specific as possible.

(1) Prophylactic restriction against all emotional stress. Examples include:

- recurrent complex cardiac arrhythmia persisting despite appropriate treatment.
- unstable angina or rest angina at a frequency of three or more times a week, documented by history.
- uncompensated heart failure.
- EKG demonstration of silent ischemia persisting despite appropriate treatment documented by Holter Monitor and diary.

(2) Prophylactic restriction from more than ordinary – for the person being examined – emotional stress. Examples include:

- occasional episodes of complex arrhythmia or arrhythmias associated with undue or more than ordinary emotional stress document by Holter Monitor and diary.
- angina with undue or more than ordinary stress.
- compensated heart failure.
- hypertension shown to become uncontrolled--with diastolic over 100 present 50% of the time or more – under undue or more than ordinary emotional stress.
- EKG demonstration of silent ischemia under undue or more than ordinary emotional stress documented by Holter Monitor and diary.

(3) Prophylactic restriction against severe emotional stress. Examples include:

- arrhythmia precipitated by severe emotional stress documented by Holter.
- angina precipitated by severe emotional stress.
- documented decompensation or congestive heart failure precipitated by severe emotional stress.
- hypertension which becomes uncontrolled by severe emotional stress.
- EKG demonstration of silent ischemia with severe emotional stress documented by Holter Monitor and diary.

- mitral valve prolapse: a mechanical abnormality which becomes symptomatic (chest pain and/or cardiac arrhythmias) under conditions of severe emotional stress. Mitral valve prolapse must be documented.
- psychophysiological cardiovascular reaction. This includes clinical pictures of chest pain with no cardiac pathology and cardiac irregularity (palpitation of simple arrhythmia) for which no other organic cause is found. These symptoms are often precipitated by severe emotional stress.

I. Previous Cardiac History Including Myocardial Infarction, Coronary Artery Bypass Surgery or Coronary Angioplasty

The previous history of myocardial infarction, coronary surgery, coronary angioplasty, atherectomy or coronary stent placement as a consequence of the incident injury shall be considered in a finding of disability and the resulting finding may or may not be absorbed in the (exercise capacity based) findings as the evidence directs.

## SECTION III: DISABILITY EVALUATION SCHEDULE FOR THE HEART

The above clinical and laboratory approach to cardiac evaluation as described in Section I gives rise to the objective and subjective factors to be utilized in cardiac disability evaluation. The various factors were described above under Section II. The cornerstone of the disability evaluation is work level, before and after the industrial injury as established by stress testing (Section IIA, IIB, IIC). 45% of the testing end point is the accepted level for sustained work. Consideration shall also be given to a need for maximum short term effort (less than 15 minutes once a day) in certain occupations. The 80% level in METs of the person's testing end point shall meet or exceed this short-term METs requirement. In arriving at the findings of disability, the physician shall consider the current work level status (Section IIA, IIB) and the pre-injury work level status (Section IIC). Using those two levels as measured in METs, the physician shall calculate the percentage of impairment as a result of the industrial injury:

% of impairment = (1-current work level/pre-injury work level) x 100%

For example, if a worker had a pre-injury work level of 12 METs, after his industrial injury his current work level has been determined to be 8 METs, his % of impairment is (1 - 8/12) x 100%= 33 1/3%. The minimal METs required for mere surviving (generally less than 2.5 METs), that is without any capacity of any work, may be taken into consideration and may be used to modify the above formula.

When the determination of pre-injury work level is not feasible, Table 4 is offered as a guide to estimate *minimum* work preclusion on the basis of current work level.

Other objective and subjective factors as described in Section II shall be considered when they are appropriate in arriving at the final disability finding. If symptoms and signs of coronary artery spasm, arrhythmia, hypertension or emotional stress cause exercise testing to be stopped, disability for those clinical factors would be at least partially "absorbed" in the (exercise capacity based) disability findings. Otherwise (if there are no symptoms or signs resulting at the time) if coronary artery spasm, arrhythmia, hypertension or emotional stress given rise to non-scheduled disability findings, these findings may or may not be absorbed in the (exercise capacity based) disability findings as the evidence directs. If the physician feels comfortable with using the Guideline for Work Capacity (Table I) directly without calculating the percentage of impairment, he may do so.

Table 1 - A

Guideline for Work Capacity

(For Dates of Injury Prior to 4/1/97)

(a) "Disability Precluding Very Heavy Lifting" contemplates the employee has lost approximately one-quarter of pre-injury lifting capacity. A statement such as "unable to lift 50 pounds" is not meaningful. The total lifting effort, including weight, distance, endurance, frequency, body position, and similar factors should be considered with reference to the particular individual.

(b) "Disability Precluding Very Heavy Work" contemplates the employee has lost approximately one-quarter of pre-injury lifting capacity for performing such activities as bending, stooping, lifting, pushing, pulling and climbing or other activities involving comparable physical effort.

(c) "Disability Precluding Heavy Lifting" contemplates the employee has lost approximately half of pre-injury lifting capacity. (See statement regarding lifting in (a), above.)

(d) "Disability Precluding Heavy Lifting, Repeated Bending, and Stooping" contemplates the employee has lost approximately half of pre-injury capacity for lifting , bending, and stooping.

(e) "Disability Precluding Heavy Work" contemplates the employee has lost approximately half of pre-injury capacity for performing such activities as bending, stooping, lifting, pushing, pulling and climbing or other activities involving comparable physical effort.

(f) "Disability Resulting in Limitation to Light Work" contemplates the employee can do work in a standing or walking position, with a minimum of demands for physical effort.

(g) "Disability Resulting in Limitation to Semi-Sedentary Work" contemplates the employee can do work approximately one-half the time in a sitting position and

approximately one-half the time in a standing or walking position with a minimum of demands for physical effort, whether standing, walking, or sitting.

(h) "Disability Resulting in Limitation to Sedentary Work" contemplates the employee can do work predominantly in a sitting position at a bench, desk, or table with a minimum of demands for physical effort and with some degree of walking and standing permitted.

Table 1 - B

Guideline for Work Capacity

(For Dates of Injury On or After 4/1/97)

(a) "Disability Precluding Very Heavy Lifting" contemplates the individual has lost approximately one quarter of pre-injury capacity for lifting. (A statement "inability to lift 50 pounds" is not meaningful. The total lifting effort, including weight, distance, endurance, frequency, body position and similar factors should be considered with reference to the particular individual.)

(b) "Disability Precluding Very Heavy Work" contemplates the individual has lost approximately one quarter of pre-injury capacity for performing such activities as bending, stooping, lifting, pushing, pulling and climbing or other activities involving comparable physical effort.

(c) "Disability Precluding Repetitive Motions of Neck or Back" contemplates the individual has lost approximately one half of pre-injury capacity for flexing, extending, bending, and rotating neck or back.

(d) "Disability Precluding Heavy Lifting" contemplates the individual has lost approximately one half of pre-injury capacity for lifting. (See statement regarding lifting under "Disability Precluding Very Heavy Lifting" above.)

(e) "Disability Precluding Heavy Lifting and Repeated Bending and Stooping" contemplates the individual has lost approximately one half of pre-injury capacity for lifting, bending and stooping.

(f) "Disability Precluding Heavy Work" contemplates the individual has lost approximately one half of pre-injury capacity for performing such activities as

bending, stooping, lifting, pushing, pulling, and climbing or other activities involving comparable physical effort.

(g) "Disability Precluding Substantial Work" contemplates the individual has lost approximately three quarters of pre-injury capacity for performing such activities as bending, stooping, lifting, pushing, pulling, and climbing or other activities involving comparable physical effort.

(h) "Disability Resulting in Limitation to Light Work" contemplates the individual can do work in a standing or walking position, with a minimum of demands for physical effort.

(i) Disability Resulting in Limitation to Semi-sedentary Work" contemplates the individual can do work approximately one half of the time in a sitting position, and approximately one half of the time in a standing or walking position, with minimum of demands for physical effort whether standing, walking or sitting.

(j) "Disability Resulting in Limitation to Sedentary Work' contemplates the individual can do work predominately in a sitting position at a bench, desk or table with a minimum of demands for physical effort and with some degree of walking and standing being permitted.

## Table 2

Oxygen Requirements For Various Step, Treadmill, And Bicycle Ergometer Tests:

| METs | Treadmill Tests | | | | | | Bicycle Ergometer | Step Test | $O_2$ Requirements ml $O_2$/kg/min |
|---|---|---|---|---|---|---|---|---|---|
| | BRUCE | | KATTUS | | BALKE | BALKE | For 70kg body weight (see | NAGLE BALKE NAUGHTUS | |
| | 3-min stages | | 3-min stages | | % grade at 3.4 mph | % grade at 3 mph | Table 1 for METs level for weight and performance | 2-min stages 30 steps/min (Step height | |
| 16 | % mph | % gr | | | 26 | | | increased 4 cm q | 56.0 |
| 15 | mph | gr | | | 24 | | kgm/min | 2 min) | 52.5 |
| 14 | | | 4 | 22 | 22 | | 1500 | | 49.0 |
| 13 | 4.2 | 16 | | | | | | | |
| | | | | | 20 | | | Height (cm) | 45.5 |
| 12 | | | 4 | 18 | 18 | 22.5 | 1350 | 40 | 42.0 |
| 11 | | | | | 16 | 20.0 | 1200 | 36 | 38.5 |
| 10 | 3.4 | 14 | 4 | 14 | 14 | 17.5 | 1050 | 32 | 35.0 |
| 9 | | | | | 12 | 15.0 | 900 | 28 | 31.5 |
| 8 | | | 4 | 10 | 10 | 12.5 | 750 | 24 | 28.0 |
| 7 | 2.5 | 12 | 3 | 10 | & | 10.0 | | 20 | 24.5 |
| 6 | | | | | 6 | 7.5 | 600 | 16 | 21.0 |
| 5 | 1.7 | 10 | 2 | 10 | 4 | 5.0 | 450 | 12 | 17.5 |
| 4 | | | | | 2 | 2.5 | 300 | 8 | 14.0 |
| 3 | | | | | | 0.0 | | 4 | 10.5 |
| 2 | | | | | | | 150 | | 7.0 |
| 1 | | | | | | | | | 3.5 |

Figure 1. Oxygen requirements increase with work loads from bottom of chart to top in various exercise tests of the step, treadmill, and bicycle ergometer types.

# Table 3

## Maximum Oxygen Uptake In Healthy "Normal" Volunteers*

| MALE | | | | | FEMALE | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | "METS" | | | | "METS" | | |
| Age | Mean Mi/Kg/Min$^{-1}$ | 10th% | Mean | 90th% | Mean Mi/Kg/Min$^{-1}$ | 10th% | Mean | 90th% | Age |
| 20-29 | 39 | 9.0 | 11.0 | 13.5 | 30.2 | 6.2 | 8.6 | 10.8 | 20-29 |
| 30-39 | 37 | 8.6 | 10.5 | 13.2 | 30.2 | 6.2 | 8.6 | 10.2 | 30-39 |
| 40-49 | 35.7 | 7.8 | 10.0 | 12.8 | 26.7 | 6.0 | 7.6 | 10.0 | 40-49 |
| 50-59 | 33 | 7.0 | 9.4 | 12.4 | 24.5 | 5.0 | 7.0 | 9.4 | 50-59 |
| 60+ | 29 | 5.7 | 8.2 | 11.7 | 21.8 | 4.5 | 6.2 | 8.6 | 60+ |

Data from the Cooper Clinic Coronary Risk Factor Profile Charts, which are from data collected on patients being evaluated at the Cooper Clinic and standards being established at the Institute for Aerobics Research, Dallas, Texas, 1978. Reprinted with permission from Pollock, M.L., Wilmore, J.H., and Fox, S.M.: Health and Fitness Through Physical Activity, New York, copyright John Wiley and Sons, 1978.

* Maximum oxygen uptake was estimated from treadmill time.

## Table 4

| Peak METs | Preclusion Equivalent |
|---|---|
| >9 | None to very heavy work |
| 7 - 9 | Heavy work |
| 5 to 7 | Light Work |
| 2.5 to 5 | Sedentary Work |
| <2.5 | Total |

NOTE: Authority cited: Section 139.2(j)(2), Labor Code. Reference: Sections 139.2(j)(2), 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 5–23–94; operative 6–22–94 (Register 94, No. 21).
2. Amendment of section and NOTE filed 6–19–98; operative 7–19–98 (Register 98, No. 25).
3. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

### § 46. Method of Evaluation of Neuromusculoskeletal Disability.

The method of measuring the neuromusculoskeletal elements of disability shall be as set forth below in the "Guidelines for Evaluation of Neuromusculoskeletal Disability" as adopted by the Industrial Medical Council on October 20, 1994.

# GUIDELINES FOR EVALUATION OF NEUROMUSCULOSKELETAL DISABILITY

## I. INTRODUCTION

### A. BASIC PURPOSE OF THE GUIDELINES

The purpose of these evaluation guidelines is to develop a more uniform method of evaluating musculoskeletal injuries without diminishing the individual expertise of the participating evaluator. This method will allow involved parties (particularly the WCAB) to review evaluator's reports which employ a more standardized format.

### B. GENERAL APPROACH

The evaluator shall personally take the history from the injured worker and perform the examination. The evaluator may have an assistant make an initial outline of the injured worker's history or take excerpts from prior medical records, however the evaluator must review the excerpts and/or outline with the injured worker. Occupational and medical questionnaires may be useful to assist the injured worker in compiling the details of the injury prior to the consultation with the evaluator.. Any discrepancies in the various sources of information should be identified and clarified by the evaluator.

The injured worker shall at all times be evaluated in a compassionate and respectful manner.

The evaluator will introduce him/herself, and explain to the injured worker the purpose and scope of the evaluation.

The evaluator must inform the injured worker of any significant medical findings which could impact on his or her health. These findings may not be directly related to the work injury.

## II. COMPONENTS OF THE REPORT

### A. INITIAL PAGE

Address the report to the referring party(ies) or the DEU office noted on the Request for Summary Rating form. Report on factors influencing the complexity of the examination, being aware that complexity factors may be medical in nature or medical-legal, such as apportionment. Give an explanation if the face to face time of the examination was less than the required twenty minutes.

Give names and professional description of any persons assisting with the report or performing diagnostic or consultative services. Note if there were communication difficulties (e.g. aphasia) or translation services required for the evaluation.

## B. HISTORY OF INJURY

Report on the details of the injury, subsequent treatment, injured worker's response to treatment, general description of the injured worker's medical history and any previous injuries or symptoms involving that area of injury.

Note the relevant work history including previous and current jobs. Review and comment on the formal job analysis if it is available.

## C. CURRENT SYMPTOMS

Include detailed information concerning abnormal sensations, especially 'pain', since it is the major symptom which results in limitation of activity and associated disability.

Using the patient's own words, describe the pain in terms of: (1) location, (2) frequency, (3) intensity, (4) quality and (5) radiation into the extremities. Report pain radiating into other areas such as the abdomen, groin or genitals, particularly if this results in a separate physical impairment.

When appropriate, mention symptoms such as muscle spasm, cramps, swelling, atrophy, or limping.

State whether or not the injured worker has weakness, stiffness, or numbness.

Do not simply state that the injured worker has "no symptoms". Document the injured worker's responses to your specific questions.

Report on symptoms which may indicate serious, underlying pathology. These findings may require that you make timely referral arrangements for evaluation and treatment by an appropriate specialist.

NOTE: The description of symptoms shall be 'translated' later by the evaluator into ratable language in the "Subjective Factors of Disability" as defined by Packard Thurber.

Describe whether the symptoms are increasing, decreasing or have plateaued. Indicate the period of time over which there has been improvement or deterioration and the injured worker's explanation for any change such as returning to repetitive bending activities.

Give a description of any treatment or self administered procedures (rest, ice, heat, or medication) and any benefit realized.

## D. RELATIONSHIP OF IMPAIRMENT TO SYMPTOMS

Assess and report on the effect of the following activities on the injured worker's symptoms:

1. standard work activities;
2. activities specific to the injured worker's job;
3. activities specific to daily living.

Consult Appendix A for a list and description of the various activities to be considered.

Describe the patient's pre-injury capacity, the current functional limitations, and the reason for the limitations for example pain, weakness, or stiffness.

## E. PAST MEDICAL HISTORY

Record significant aspects of the injured worker's past medical history, previous injuries, illnesses, and physical conditions or symptoms that are similar or related to the present complaints.

## F. PHYSICAL EXAMINATION

See Section 1 for physical examination of specific body parts.

## G. REVIEW OF MEDICAL RECORDS

List the medical records which were reviewed with a brief synopsis of relevant information.

## H. DIAGNOSTIC TESTING:

List any diagnostic procedures performed, as well as the dates and the results of the procedures. Provide the name, specialty, qualifications and opinion of any consultants.

Order diagnostic studies only when the studies may alter the recommended plan or the evaluator's opinion regarding factors of disability. The evaluator must document the need for these additional studies.

## I. DIAGNOSIS

List the relevant diagnosis(es). When appropriate, state if the injury is right or left sided or bilateral. If the diagnosis involves the upper extremity, state whether the dominant or non-dominant limb is involved.

## J. OPINIONS & DISCUSSION

State that the report represents your opinions and how those opinions were derived after carefully reviewing the forwarded medical information, the injured worker's subjective statements offered during consultation, and examination findings.

## K. CAUSATION

State an opinion as to whether the injury or illness which led to the disability arose out of the employment.

## L. PERMANENT and STATIONARY

State whether the injured worker is permanent and stationary and reasons for that opinion. The term permanent and stationary means that the injured worker has reached maximal improvement or his condition has been stationary for a reasonable period of time.

## M. TEMPORARY DISABILITY

If the injured worker is not permanent and stationary, describe the work restrictions, any additional treatment and the anticipated length of time necessary to achieve permanent and stationary status.

## N. FACTORS OF DISABILITY

Do not provide a "rating" but describe the medical information in such a way as to be used by raters, judges and other concerned parties. The evaluator will describe the subjective and objective components of disability. The following information shall be included:

### 1. Subjective Factors of Disability

Translate the injured worker's symptoms into ratable language using the terminology found in Appendix A.

### 2. Objective Factors of Disability

Note those finding which can be measured, observed or demonstrated on testing. They include, but are not limited to: range of motion, strength, sensation, reflexes, anatomical measurements, disfigurement, and radiographic or diagnostic results.

Note if assistive devices, prosthetics, or orthotics are required. Note if the device causes any limitation in motion.

### 3. Loss of Pre-Injury Capacity

Describe the loss of pre-injury capacity for activities. Report loss of pre-injury capacity for the work activities the injured worker was performing at the time of the injury and for potential activities in the open labor market.

The evaluator will estimate the total or partial loss of the injured worker's pre-injury capacity to lift, bend, stoop, push, pull, climb or other activities involving comparable physical strength. The best means is to describe the injured worker's loss of capacity, such as loss of one-quarter of his ability to lift.

Use of job history and/or description as well as other activities of daily living to estimate the pre-injury capacity, should be noted in the report to substantiate the evaluator's opinion on loss.

### 4. Work Restrictions

Describe all permanent work restrictions. Be as specific as possible, incorporating the injured worker's history, the RU-90, the DEU Form 100, and a formal job analysis, if it is available.

## O. APPORTIONMENT

State if apportionment is indicated and provide reasons for the statement. See the *Physicians Guide Chapter 3* for more information on apportionment.

## P. FUTURE MEDICAL CARE

Give reasons for your opinion as to whether further medical treatment is indicated or not. Describe the treatment that you deem necessary including length and frequency.

## Q. VOCATIONAL REHABILITATION

If requested, state if the injured employee is a qualified injured worker (QIW).

## R. AFFIRMATIONS AND SIGNATURE

The following paragraph must be included and signed and dated by the evaluator. The report must contain an original signature by the evaluator.

"I declare under penalty of perjury that the information contained in this report and its attachments, if any, is true and correct to the best of my knowledge and belief, except as to information that I have indicated I received from others. As to that information, I declare under penalty of perjury that the information accurately describes the information provided to me and except as noted herein, that I believe it to be true."

I have not violated Labor Code Section 139.3 and the contents of the report and bill are true and correct to the best of my knowledge.

The foregoing declaration was signed in _____ County, California on

_____ (date).

_____
EVALUATOR'S SIGNATURE

# SECTION I

## LOW BACK INJURIES WITH OR WITHOUT RADIATING SYMPTOMS

### I. PHYSICAL EXAMINATION

#### A. OBSERVATION & INSPECTION

The physical examination shall include relevant description of body habitus such as height and weight and any general observation such as limp or deformities, obvious discomfort when standing or sitting, difficulty in transferring or changing position, or thigh climbing when arising from a seated position. Note any assistive devices, prothestics or orthotics that the injured worker uses and describe those devices. Note any loss of normal contours of the body or abnormal symmetry in the trunk, rib cage, spine or bony prominences such as the posterior superior iliac spine.

Inspect the soft tissues for surgical scars, abrasions, discoloration, birthmarks, swelling or similar abnormalities. Also inspect for obvious atrophy or skeletal deformities such as angulation of healed fractures, varus or valgus joint deformities or amputation.

#### B. PALPATION

Palpate both bony and soft tissue structures throughout the area of complaint and any other commonly associated areas. The contact should be gentle but firm. As you palpate, gauge skin temperature and take note of any tenderness elicited. Palpate both sides to facilitate bilateral comparison. Any painful areas, fibrosis, swelling, hypertrophy or abnormality should be noted. It is not adequate for the evaluator to state that the palpation was essentially normal without indicating what areas were palpated.

#### C. RANGE OF MOTION

The evaluator will measure the active range of motion including flexion, extension, lateral bending and rotation of the lumbar spine. Use of goniometers or inclinometers is recommended. The means of measuring the motion shall be reported. For flexion, the distance from the finger tips to the floor will be recorded.

The range of motion will be given in degrees or the percentage of an anticipated normal value. The evaluator should list the range of motion as a ratio of the observed compared to the anticipated normal for that joint.

The reason for any limitation in range of motion, such as pain, tightness or spasm, will be reported. On occasion, gentle passive range of motion may be

performed in addition to active range of motion to determine whether the restriction is due to pain or mechanical block.

D. MEASUREMENTS

Measure the lower extremity leg length, thigh girth and calf girth. The thigh and calf measurements are taken at the same point on each extremity. Measure the thigh at a point 1/3 of the distance from the proximal pole of the patella to the umbilicus. Measure the calf circumference at the largest diameter of the calf muscles. It may be appropriate to take circumferential measurements of other areas if specific atrophy is noted.

Leg length may be measured from the anteriosuperior iliac spine to the medial malleolus, the umbilicus to the medial malleolus or the posterior superior iliac spine to the medial malleolus, when a functional leg length discrepancy is suspected.

E. TESTING

1. ORTHOPEDIC

There are multiple orthopedic tests to aid in the determination of the diagnosis of low back conditions. The appropriate tests will be determined by the evaluator based on the history and other examination findings. The evaluator will use those tests that will assist in ruling-in or ruling-out diagnostic probabilities for that injured worker. Some of the more frequently used tests are: sciatic stretch test such as straight leg raise with and without ankle dorsiflexion, hip function tests such as FABERE (Flexion Abduction External Rotation) and Laguerre as well as other tests such as Trendelenburg, Thompson, Gaenslen, Spurling, and Ely.

If systemic arthritis is a consideration, chest excursion should be reported.

2. NEUROLOGICAL

a. MOTOR EXAMINATION

i. Atrophy of specific muscle groups of the lower extremity should be described. General muscle bulk is assessed by measurements of both calf and thigh, as noted above in D. MEASUREMENTS.

ii. Muscle tone shall be described as increased, normal, decreased or in other appropriate terms.

iii. Muscle strength shall be graded, using a scale such as those provided in Appendix B. If muscle weakness is noted, the evaluator should state

an opinion as to the cause such as neurological deficit, pain, disuse atrophy or lack of effort.

b. SENSORY

The sensory examination shall include response to light touch and pinprick. Response to vibration or two point discrimination may be elicited when indicated.

Pinprick examination of the perianal region and assessment of sphincter tone may be indicated in certain cases.

Any abnormalities shall be described fully and correlated with peripheral nerve or dermatomal patterns. Note if the pattern of sensory impairment is nonphysiological.

c. REFLEXES

The patellar and Achilles deep tendon reflexes shall be obtained and graded as O (absent) to 4 (hyperactive). The normal grade is 2. If a different scale is used, a description of the grading system will be included to indicate normal values. Testing with reinforcement may be indicated. Note if clonus is present. Note whether any other abnormal reflexes were elicited.

d. COORDINATION

Coordination shall be assessed if this is a presenting complaint or if there is a suspicion of spinal or lower extremity motor impairment. In this case, describe the performance of the appropriate tests such as finger to nose or heel to shin.

e. VASCULAR

Bilateral dorsalis pedis and posterior tibial pulses should be evaluated if the history or examination findings indicated vascular etiology. Report varicosities and edema if present or relevant.

f. OTHER

A digital rectal examination may be indicated in certain cases to rule out entities such as tumor.

## F. FUNCTIONAL ASSESSMENT

The injured worker should be assessed for tandem (heel-toe) gait, tip-toe gait and heel gait.

The injured worker's ability to sit should be assessed during the consultation and noted in the report.

As indicated, evaluate the injured worker's ability to squat, stand, and perform other ambulatory activities.

# APPENDIX A

## DESCRIPTION OF ACTIVITIES

| | |
|---|---|
| BALANCING: | Maintaining body equilibrium |
| BENDING: | Angulation from neutral position about a joint (e.g. elbow) or spine (e. g. forward) |
| CARRYING: | Transporting an object, usually holding it in the hands or arms or on the shoulder. |
| CLIMBING: | Ascending or descending ladders, stairs, scaffolding, ramps, poles, etc. . . . using feet and legs and/or hands and arms. |
| CRAWLING: | Moving about on hands and knees and feet. |
| CROUCHING: | Bending body downward and forward by bending lower limbs, pelvis and spine. |
| FEELING: | Perceiving attributes of objects such as size, shape, temperature, or texture by means of receptors in the skin, particularly those of the finger tips. |
| FINGERING/ PINCHING: | Picking, pinching or otherwise working with fingers and thumb primarily (rather than with whole hand or arm as in handling). |
| GRASPING/ HANDLING: | Seizing, holding, grasping, turning or otherwise working with hand or hand (fingering not involved). |
| JUMPING: | Moving about suddenly by use of leg muscle, leaping from or onto the ground or from one object to another. |
| KNEELING: | Bending legs at knees to come to rest on knee or knees. |
| LIFTING: | Raising or lowering an object from one level to another (includes upward pulling) |
| OVERHEAD/ OVER SHOULDER: | Performing work activities with arm raised and held unsupported, at or above shoulder level. |
| PIVOTING: | Planting your foot and turning about that point. |

| | |
|---|---|
| PUSHING: | Exerting force upon an object so that the object moves away from the force (includes slapping, striking, kicking and treadle actions). |
| PULLING: | Exerting force upon an object so that the object moves towards the force (includes jerking). |
| REACHING: | Extending the hand(s) and arm(s) in any direction. |
| RUNNING: | Moving in a fast pace, moving the legs rapidly so that for a moment both legs are off the ground. |
| SITTING: | Remaining in the normal seated position. |
| SQUATING: | Crouching to sit on your heels, with knees bent and weight on the balls of your feet. |
| STANDING: | Remaining on one's feet in an upright position at a work station without moving about. |
| STOOPING: | Bending body downward and forward by bending spine at waist. |
| TURNING/ TWISTING: | Moving about a central axis, revolve or rotate. |
| USE OF HAND OR FOOT CONTROLS: | Required to control a machine by use of controls. |
| WALKING: | Moving about at a moderate pace over even or uneven ground. |

# APPENDIX B

## EXAMPLES OF MUSCLE GRADING CHARTS

Results may be reported using a verbal scale or a percentage loss of muscle strength as follows. In either case, the evaluator must still describe how a given loss of muscle strength affects the injured worker's capacity to perform work.

| MUSCLE GRADATION | DESCRIPTION |
|---|---|
| 5-Normal | 5-complete range of motion against gravity with full resistance |
| 4-Good | 4-complete range of motion against gravity with some resistance |
| 3-Fair | 3-complete range of motion against gravity |
| 2-Poor | 2-complete range of motion with gravity eliminated |
| 1-Trace | 1-reads evidence of slight contractility, no joint motion |
| 0 (Zero) | 0-no evidence of contractility |

| KENDALL | LOVETT | DESCRIPTION |
|---|---|---|
| 100 %<br>95 % | Normal<br>Normal - | The ability to hold the test position against gravity and maximum pressure, or the ability to move the part into test position and hold against gravity and maximum pressure. |
| 90 %<br>80 % | Good +<br>Good | Same as above except holding against moderate pressure. |
| 70 %<br>60 % | Good -<br>Fair + | Same as above except holding against minimum pressure. |
| 50 % | Fair | The ability to hold the test position against gravity, or the ability to move the part into test position and hold against gravity. |
| 40 % | Fair - | The gradual release from test position against gravity; or the ability to move the part toward test position against gravity almost to completion, or to completion with slight assistance or the ability to complete the arc of motion with gravity lessened. |

| KENDALL | LOVETT | DESCRIPTION |
|---|---|---|
| 30 %<br><br><br><br>20 % | Poor +<br><br><br><br>Poor | The ability to move the part through partial arc of motion with gravity lessened; moderate arc, 30% or poor +; small arc, 20% or poor. To avoid moving a patient into gravity-lessened position, these grades may be estimated on the basis of the amount of assistance given during anti-gravity test movements: A 30% or poor + muscle requires moderate assistance, a 20% or poor muscle requires more assistance. |
| 10 %<br><br>5 % | Poor -<br><br>Trace | In muscles that can be seen or palpated, a feeble contraction may be felt in the muscle, or the tendon may become prominent during the muscle contraction, but there is no visible movement of the part. |
| 0 % | Gone | No contraction felt in the muscle. |

# APPENDIX C

## DESCRIPTION OF SEVERITY

A *minimal* (mild) pain would constitute an annoyance. but causing no handicap in the performance of the particular activity, would be considered a nonratable permanent disability

A *slight* pain could be tolerated, but would cause some handicap in the performance of the activity precipitating the pain.

A *moderate* pain could be tolerated, but would cause marked handicap in the performance of the activity precipitating the pain.

A *severe* pain would preclude the activity precipitating the pain.

The evaluator must demonstrate that he/she understands that the severity levels for pain are descriptions of how the pain affects work performance and ability to work, rather than how severely the injured worker perceives the symptom.

The FREQUENCY of pain and similar symptoms must also be described as:

| | |
|---|---|
| OCCASIONAL | 25% of the time. |
| INTERMITTENT | 50% of the time. |
| FREQUENT | 75% of the time. |
| CONSTANT | 90-100% of the time. |

NOTE: Authority cited: Section 139.2(j)(2), Labor Code. Reference: Sections 139, 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 4–18–96; operative 4–18–96 pursuant to Government Code section 11343.4(d) (Register 96, No. 16).
2. Change without regulatory effect amending "Guidelines for Evaluation of Neuromusculoskeletal Disability, 2nd Ed." (incorporated by reference) filed 6–6–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 23).
3. Change without regulatory effect amending NOTE filed 8–1–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 31).
4. Amendment of section and NOTE filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
5. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

### § 46.1. Guidelines for the Evaluation of Foot and Ankle Disability.

I. Introduction

A. Basic Purpose of the Guidelines

The purpose of these evaluation guidelines is to develop a more uniform method of evaluating foot and ankle injuries without diminishing the individual expertise of the participating evaluator. This method will allow involved parties (particularly the WCAB) to review evaluator's reports, which employ a more standardized format.

B. General Approach

The evaluator shall personally take the history from the injured worker and perform the examination. The evaluator may have an assistant make an initial outline of the injured worker's history or take excerpts from prior medical records, however the evaluator must review the excerpts and/or outline with the injured worker. Occupational and medical questionnaires may be useful to assist the injured worker in compiling the de-

tails of the injury prior to the consultation with the evaluator. Any discrepancies in the various sources of information should be identified and clarified by the evaluator.

The injured worker shall at all times be evaluated in a compassionate and respectful manner.

The evaluator will should introduce him/herself, and explain to the injured worker the purpose and scope of the evaluation.

The evaluator must inform the injured worker of any significant medical findings, which could impact on his or her health. These findings may not be directly related to the work injury.

II. Components of the Report

A. Initial Page

Address the report to the referring party(ies) or the DEU office noted on the Request for Summary Rating form. Report on the face to face time and factors influencing the complexity of the examination, being aware that complexity factors may be medical in nature or medical–legal, such as apportionment.

Give names and professional description of any persons assisting with the report or performing diagnostic or consultative services. Note if there were communication difficulties (e.g. aphasia) or translation services required for the evaluation.

B. History

Medical records and history questionnaires shall be used only as an adjunct to the history as told by the patient to the physician. The physician shall personally take the history from the injured worker. Any discrepancies in the history between various sources must be identified and clarified. An appropriate history shall include:

D. Work history, including previous and current jobs, and some description of previous, and current job duties. Review and comment on a formal job description if it is available for review. Particular attention for the foot and ankle is placed on requirements for standing, walking (over even or uneven surfaces), running, squatting, sitting, kneeling, climbing, jumping, hopping, balancing, lifting, carrying, pushing or pulling with the legs or feet and use of foot controls.

This section is especially important, as the physician must extract sufficient history to assess the injured worker's pre–injury functional capacity for work activity. Determining the previous work capacity within the past several years best assesses this. Regular non–work activities can also be taken into account to determine previous functional levels.

E. Description of how and when the injury occurred and the type of occupational exposure.

F. Summary of the course of treatment for the injured worker since injury includes type of treatment and response to treatment to date.

G. Current treatment including type and frequency.

H. Description of pertinent past medical history including previous and or subsequent injuries or illnesses, and a description of any prior neurological or musculoskeletal disabilities particularly relating to the lower extremity.

I. Pertinent other past medical history and other contributing medical, psychological, or social concerns.

C. Current Complaints

The physician shall outline in the patient's words, his or her current complaints. This shall include all parts affected by the injury or injuries claimed, the character (quality), severity, frequency, and any radiation of symptoms, and what activities or interventions precipitate, aggravate or reduce symptoms. Delineate existing associated signs and symptoms of the injury.

NOTE: The patient's own description of symptoms shall be "translated" later by the physician into ratable language as defined by Packard Thurber.

Any subjective complaints regarding work activity or other activities of daily living (ADL's) shall be outlined in this section. For the foot and ankle, any functional complaints in such as standing, walking (over even or uneven surfaces), running, squatting, sitting, kneeling, climbing, jumping, lifting, carrying, balancing, pushing or pulling with the legs or feet and the use of foot controls shall be listed in this section.

The use of assistive devices (if any) for mobility such as a wheelchair, cane, or crutches, shall be elicited and described as to type and frequency of use, as well as the need and type of any orthotic or prosthetic devices and special shoes.

D. Medical Records Reviewed

In this section, the physician shall list all records reviewed in the preparation of the report. Extractions from those records may be listed in this section or summarized in the History section of the report.

D. Physical Examination of the Foot and Ankle for Disability Evaluation

(1) The physical examination shall include relevant description of body habitus, and any general observations such as a limp, obvious discomfort when standing, difficulty in transferring, etc. that may be helpful in determining previous or current functional capacity. Note any assistive devices, prosthetics, orthotics, or shoes that the patient uses and describe.

(2) In all measurements or observations performed, if normal, the physician may simply state "normal". Describe tests rather than just use an acronym.

(3) Inspection: The physician shall describe any skin abnormalities, surgical scars, obvious atrophy or skeletal deformities (e.g. angulation of healed fractures, varus or valgus joint deformity, or amputation). The injured parts of the foot or ankle shall be inspected for soft tissue swelling and dislocation.

(1) Amputations shall be described anatomically.

(1) Affected areas shall be palpated for tenderness. Any painful areas shall be reported. Any alterations of skin temperature or vascular status shall be noted.

(6) Joint examination

a. The physician shall assess the affected joints and compare them to the uninjured side.

a. Joint effusion, enlargement, erythema, and instability shall be described if present. Pertinent clinical tests used in joint assessment (i.e. drawer signs, Thompson's sign, etc.) shall be described and noted as normal or abnormal. If there is an abnormal range of motion that is not secondary to the injury, give an explanation for this finding.

b. Goniometric measurement is the accepted method of evaluation of range of motion for the foot and ankle. A description of goniometric methods of measurement and estimated normal values for the foot and ankle can be found in Packard Thurber. Evaluation of Industrial Disability, Second Edition, Oxford University Press. The physician shall measure active range of motion of all affected joints of the foot and ankle as compared to the uninjured side. Any abnormal, excessive, or limited range of motion or ankylosis shall be described.

For bilateral injuries estimate the normal range of motion. Note whether the injured worker gave full effort on active range of motion and if there was any unexplained discrepancies in formally measured versus observed range of motion, or whether limitations in active range of motion was based on pain. If so, list arc range of motion precluded or inhibited by pain. If the measurement obtained were invalid based on lack of effort, so note.

(7) Leg lengths shall be measured in inches from Anterior Superior Iliac Spine (ASIS) to medial malleolus and if appropriate, other methods of leg length measurement may be included.

D. Gait and other functional assessment: Any abnormality of gait shall be described (propulsive vs. apropulsive, angle and base of gait, etc.). Evaluate patient's ability to squat, stand, kneel, heel and toe walk.

(9) Neurological examination of the foot or ankle shall be performed for any complaints of weakness, sensory impairment or dysesthesias. This shall include assessment of:

a. Motor examination

i. Atrophy of specific muscles or muscle groups of the lower extremities or foot should be described. General muscle bulk is assessed by measurement s of the calves and thighs in inches. Circumferencial measure-

ments of the foot and ankle should be recorded. Calf measurements are taken at the point of maximum circumference. Thigh circumferences are taken at the point one–third the distance from the upper pole of the patella to the umbilicus.

ii. Muscle tone shall be described as increased, normal or decreased.

i. Muscle strength shall be graded using a scale such as those found in Appendix A. Muscle weakness due to neurologic impairment shall be differentiated by the examiner from lack of effort due to pain, disuse or lack of effort due to other causes. In cases of questionable effort, muscle weakness due to neurologic deficit can generally be corroborated by appropriate electodiagnostic testing including needle EMG and a nerve conduction study performed by an appropriately qualified physician.

b. Sensory examination shall include a screening of touch and pain sensation (pinprick) in pertinent foot, ankle and lower extremity dermatomes/peripheral nerve distributions and of joint proprioception of any involved joints. Any abnormalities shall be described fully and correlated with peripheral nerve or dermatomal pattern. If the pattern of sensory impairment is nonphysiological, this should be noted

c. Deep tendon reflexes shall be obtained and graded as 0 (absent) to 4+ (hyperactive with clonus). Plantar responses and any other abnormal reflex responses shall be recorded.

d. Coordination shall be assessed if this is a presenting complaint, or if there is suspicion of foot, ankle or lower extremity motor coordination impairment. In this case, finger to nose, heel to shin and gait should be described.

(10) Screening exam of remainder of neurological or musculoskeletal system if there is any evidence of more widespread involvement.

D. Diagnostic Studies in Lower Extremity Disability Evaluation

(1) Order diagnostic studies only when the studies may alter the recommended plan or the evaluator's opinion regarding factors of disability. The evaluator must document the need for these additional studies.

(2) List any diagnostic procedures performed, as well as the dates and the results of the procedures. Provide the name, specialty, qualifications and opinion of any consultants.

(3) Methods of Assessment

a. Clinical diagnosis of foot and ankle problems can usually be made on history and physical examination with the help of x–rays.

b. In addition to an x–ray, testing may include:

i. MRI

ii. CT

iii. Bone Scan

iv. Arthrogram

v. Use of mechanical devices to test strength and stability.

vi. EMG/NCV testing is appropriate only if there is a suggestion of nerve damage or nerve compression.

vii. Vascular studies are indicated only if there is associated vascular disruption/damage or a secondary vascular complication.

viii. Blood Studies

ix. Ultrasound

x. Diagnostic, but not therapeutic, blooks

y. There are other tests that may be performed with proper documentation of necessity:

G. Diagnosis

List the relevant diagnosis(es). When appropriate, state if the injury is right or left sided or bilateral.

H. Opinions & Discussion

State that the report represents your opinions and how those opinions were derived after carefully reviewing the forwarded medical information, the injured worker's subjective statements offered during consultation, and examination findings.

I. Causation

State an opinion as to whether the injury or illness that led to the disability arose out of the employment (AOE).

J. Permanent and Stationary

State whether the injured worker is permanent and stationary and reasons for that opinion. The term permanent and stationary means that the injured worker has reached maximal improvement or his condition has been stationary for a reasonable period of time.

K. Temporary Disability

If the injured worker is not permanent and stationary, describe the current work restrictions that might allow the worker to return to work immediately, any additional treatment and the anticipated length of time necessary to achieve permanent and stationary status.

L. Factors of Disability

The evaluator will describe the subjective and objective components of disability. Do not provide a "rating" but describe the medical information in such a way as to be used by raters, judges and other concerned parties. The following information shall be included:

1. Subjective Factors of Disability

Translate the injured worker's symptoms into ratable language using the terminology found in section 9727 of title 8 of the California Code of Regulations, and reproduced here in Appendix B. Subjective factors are those that cannot be directly measured or observed, such as pain, stiffness, and paresthesia. It is important to note that this is the physician's assessment of residual symptoms and is based on the examination, the physician's experience with similar injuries and his/her expert medical opinion. It is not simply a catalog of an individual's complaints, as this might inaccurately inflate the disability rating if the complaints are not consistent with the physician's findings. Statements in this part of the report should be consistent with the nature of the injury and with the objective findings. Work restrictions based on subjective factors that are out of proportion to objective findings require specific explanation.

The recommended description of subjective disability should include the activity which produces disabling symptoms; the intensity, frequency and duration of symptoms; a description of the activities that are precluded and those that can be performed with the symptoms; and the means necessary for relief.

2. Objective Factors of Disability

Note those findings which can be measured, observed or demonstrated on testing. They include, but are not limited to: range of motion, strength, sensation, reflexes, amputation, anatomical measurements, disfigurement, and radiographic or other diagnostic results.

Note if assistive devices, prosthetics, or orthotics are required and describe the device. Note if the device causes any limitation in motion.

3. Work Capacity

Report work restrictions for the activities the injured worker was performing at the time of the injury and for potential activities in the open labor market.

The evaluator will estimate the total or partial loss of the injured worker's pre–injury capacity to lift, walk, push, pull, climb, walk on uneven ground, squat, kneel, crouch, pivot, bear weight or other activities involving comparable physical strength. The best means is to describe the injured worker's loss of capacity, such as loss of one–quarter of his ability to lift.

Use of job history and/or description as well as other activities of daily living to estimate the pre–injury capacity, should be noted in the report to substantiate the evaluator's opinion on loss. Be as specific as possible, incorporating the injured worker's history, the RU–90, the DEU Form 100, and a formal job analysis, if it is available.

M. Apportionment

State if apportionment is indicated and provide reasons for the statement. Indicate in the report whether apportionment is for a pre–existing condition under Labor Code section 4750, an underlying disease process under Labor Code section 4663 or a subsequent non–industrial injury under Labor Code section 4750.5.

N. Further medical care

Give your recommendation for current and future treatment. If the injured worker is currently receiving treatment, indicate whether the treatment is necessary to either improve or prevent deterioration of the current condition. If you believe that additional treatment is indicated to reach maximum improvement, you should explain the type of treatment, the reasons for the treatment, and the possible benefits of the treatment.

O. Vocational rehabilitation

If requested, state if the injured employee is medically qualified for vocational rehabilitation based on your review of the job analysis.

P. Affirmations and signature

The following paragraph must be included and signed and dated by the evaluator. The report must contain an original signature by the evaluator.

"I declare under penalty of perjury that the information contained in this report and its attachments, if any, is true and correct to the best of my knowledge and belief, except as to information that I have indicated I received from others. As to that information, I declare under penalty of perjury that the information accurately describes the information provided to me and except as noted herein, that I believe it to be true."

I have not violated Labor Code Section 139.3 and the contents of the report and bill are true and correct to the best of my knowledge.

The foregoing declaration was signed in _____ County, California on _____ (date).

_____

Evaluator's Signature

NOTE: Authority cited: Sections 139, 139.2, 4060, 4061 and 4062, Labor Code. Reference: Sections 139, 139.2, 4060, 4061, 4061.5 and 4062, Labor Code.

HISTORY

1. New section and appendices A–C filed 1–8–2003; operative 2–7–2003 (Register 2003, No. 2).

## Appendix A

Muscle Grading Chart

Results may be reported using a verbal scale or a percentage loss of muscle strength as follows. In either case, the evaluator must still describe how a given loss of muscle strength affects the injured worker's capacity to perform work.

| *Muscle Gradation* | *Description* |
|---|---|
| 5–Normal | 5–complete range of motion against gravity with full resistance |
| 4–Good | 4–complete range of motion against gravity with some resistance |
| 3–Fair | 3–complete range of motion against gravity |
| 2–Poor | 2–complete range of motion with gravity eliminated |
| 1–Trace | 1–reads evidence of slight contractility, no joint motion |
| 0 (Zero) | 0–no evidence of contractility |

Examples of Muscle Grading Charts

Results may be reported using a verbal scale or a percentage loss of muscle strength as follows. In either case, the evaluator must still describe how a given loss of muscle strength affects the injured worker's capacity to perform work.

| *Muscle Gradation* | *Description* |
|---|---|
| 5–Normal | 5–complete range of motion against gravity with full resistance |
| 4–Good | 4–complete range of motion against gravity with some resistance |
| 3–Fair | 3–complete range of motion against gravity |
| 2–Poor | 2–complete range of motion with gravity eliminated |
| 1–Trace | 1–reads evidence of slight contractility, no joint motion |
| 0 (Zero) | 0–no evidence of contractility |

| *Kendall* | *Lovett* | *Description* |
|---|---|---|
| 100 % | Normal | The ability to hold the test position against gravity and maximum pressure, or the ability to move the part into test position and hold against gravity and maximum pressure |
| 95 % | Normal – | |
| 90 % | Good + | Same as above except holding against moderate pressure. |
| 80 % | Good | |
| 70 % | Good – | Same as above except holding against minimum pressure. |
| 60 % | Fair + | |
| 50 % | Fair | The ability to hold the test position against gravity, or the ability to move the part into test position and hold against gravity. |
| 40 % | Fair – | The gradual release from test position against gravity; or the ability to move the part toward test position against gravity almost to completion, or to completion with slight assistance or the ability to complete the arc of motion with gravity lessened. |

| *Kendall* | *Lovett* | *Description* |
|---|---|---|
| 30 % | Poor + | The ability to move the part through partial arc of motion with gravity lessened; moderate arc, 30% or poor +; small arc, 20% or poor. To avoid moving a patient into gravity–lessened position, these grades may be estimated on the basis of the amount of assistance given during anti–gravity test movements: A 30% or poor + muscle requires moderate assistance, a 20% or poor muscle requires more assistance |
| 20 % | Poor | |
| 10 % | Poor – | In muscles that can be seen or palpated, a feeble contraction may be felt in the muscle, or the tendon may become prominent during the muscle contraction, but there is no visible movement of the part. |
| 5 % | Trace | |
| 0 % | Gone | No contraction felt in the muscle. |

## Appendix B

Subjective disability should be described in terms of location, degree, frequency, and precipitating activity. Terms describing degree and frequency are taken to have the following meanings:

Degree:

Minimal or mild pain constitutes an annoyance, but causes no handicap in the performance of activity.

Slight pain can be tolerated but causes some handicap in the performance of precipitating activity.

Moderate pain can be tolerated but causes marked handicap in the performance of precipitating activity.

Severe pain precludes precipitating activity

Frequency:

Occasional — approximately 25% of the time

Intermittent — approximately 50% of the time

Frequent — approximately 75% of the time

Constant — approximately 100% of the time

## Appendix C

Description of Activities

Balancing: Maintaining body equilibrium

Bending: Angulation from neutral position about a joint (e.g. elbow) or spine (e. g. forward)

Carrying: Transporting an object, usually holding it in the hands or arms or on the shoulder.

Climbing: Ascending or descending ladders, stairs, scaffolding, ramps, poles, etc. . . using feet and legs and/or hands and arms.

Crawling: Moving about on hands and knees and feet.

Crouching: Bending body downward and forward by bending lower limbs, pelvis and spine

Jumping: Moving about suddenly by use of leg muscle, leaping from or onto the ground or from one object to another.

Kneeling Kneeling: Bending legs at knees to come to rest on knee or knees.

Lifting: Raising or lowering an object from one level to another (includes upward pulling)

Pivoting: Planting your foot and turning about that point.

Pushing: Exerting force upon an object so that the object moves away from the force (includes slapping, striking, kicking and treadle actions).

Pulling: Exerting force upon an object so that the object moves towards the force (includes jerking).

Running: Moving in a fast pace, moving the legs rapidly so that for a moment both legs are off the ground.

Sitting: Remaining in the normal seated position.

Squating: Crouching to sit on your heels, with knees bent and weight on the balls of your feet.

Standing: Remaining on one's feet in an upright position at a work station without moving about.

Stooping: Bending body downward and forward by bending spine at waist.

Turning/ Twisting: Moving about a central axis, revolve or rotate.

Use Foot Controls: Required to control a machine by use of controls.

Walking: Moving about at a moderate pace over even or uneven ground.

### § 47. Method of Evaluation of Immunologic Disability.

The method of measuring immunologic elements of disability shall be as set forth below in the "Guidelines for Immunologic Testing" as adopted by the Industrial Medical Council on March 17, 1994.

[The next page is 2.24(z)(47).]

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
Industrial Medical Council
395 Oyster Point Boulevard, 1st Floor, Wing C
South San Francisco, CA 94080

ADDRESS REPLY TO:
*P.O. Box 8888*
*San Francisco, CA 94128-8888*

# Guidelines For Immunologic Testing

**Adopted March 17, 1994**

Laboratory testing of immunologic function is appropriate and necessary in the evaluation of industrial injuries but only in selected cases.

Immunologic function testing falls into four general categories:

I. Allergy to a specific chemical agent.

II. Allergy to common antigens from the general and home environment (e.g., pollens).

III. Malfunction of the immune system unrelated to infection.

IV. Specific infection.

## Category I: Allergy To A Specific Chemical Agent

Testing shall be done only when:

A. The worker has been exposed to a specific chemical at work known to cause hypersensitivity.

B. The worker has symptoms or physical findings on examination that can be due to allergy to a chemical agent.

C. The specific suspected chemical agent of interest has been identified.

Testing shall not be done for chemical agents to which the worker has not been exposed.

The purpose of Category I is to confirm that the worker is allergic and reactive to a specific chemical agent. The presence of a laboratory test showing reactivity does not in itself indicate physical disability unless there also are subjective symptoms and/or objective findings of physical impairment which are consistent with such reactivity. Many people have positive reactivity tests but do not have clinical disease. Testing methods must be for the specific chemical agent. They may be blood tests for antibodies, skin tests or special tests such as lymphocyte reactivity to beryllium.

Category II: Tendency To React To Common Allergens

This testing is of very limited use: It is allowable only when the clinical findings (e.g., sneezing, nasal obstruction or wheezing) could be due to either workplace agent or non-industrial exposure. Testing may be of the blood (IgE, RAST) or of the skin (patch, scratch or intradermal).

Category III: Testing Of Function Of The Immune System

In unusual circumstances (e.g., occupational exposures to ionizing radiation or chemotherapeutic agents), direct clinically significant damage to the immune system may

occur and be relevant to the assessment of occupationally related disability. Many chemical agents other than chemotherapeutic drugs have been shown to produce subtle effects on the immune system in research studies. However, such subtle effects do not cause work-related disability and cannot be the basis for laboratory testing.

In the unusual circumstance in which the need for immune testing occurs, such testing shall involve some or all the following:

A. Complete blood count

B. Total serum immunoglobulin level and immunoglobulin electrophoresis

C. Total lymphocyte count and counting of T and B lymphocytes, including subsets.

Further testing of the immune system must be based on a strong clinical indication and must be supported by an explanation by the physician as to the need and purpose of the testing (which may be diagnostic or prognostic in nature but not for research purposes).

Under circumstances such as a severely emotionally stressful event or the taking of certain medications for an industrial illness or injury, an autoimmune disorder may be precipitated or aggravated. When symptoms and/or physical findings suggestive of this occur, serological testing for autoimmune disorders is appropriate, but only when needed to confirm the diagnosis.

Category IV: Specific infections

Serologic and other immune system testing are allowable only when the physician-obtained history, physical examination, routine laboratory test results and/or medical

records confirm or cause the physician to suspect certain infections that may be occupationally-related (e.g., viral hepatitis, valley fever and HIV infection).

Testing may be specific for the infectious agent or may be nonspecific:

A. Specific tests:

1. Antigen and antibody tests that currently are available for the various types of viral hepatitis (A, B, C and delta).

2. complement fixation titer for valley fever (coccidioidomycosis) to rule in or out active disseminated disease.

3. Elisa testing for an HIV infection. If positive, the results shall be confirmed with a Western Blot test.

B. Nonspecific tests:

1. White blood cell and differential count.

2. Total lymphocyte count and counting of T and B lymphocytes, including subsets. Further testing of the immune system shall be based on strong clinical indications and shall be supported by an explanation by the physician of the need and purpose of the testing.

SUMMARY:

In the four selected categorical situations, immunological laboratory testing is appropriate only as described above. Such testing shall be performed in Workers' Compensation cases only if an abnormality would affect the determination of compensability or clinical management. These conditions include determination of disability status (temporary partial disability, temporary total disability, permanent partial disability and permanent total disability), specific work restrictions, causation of disability, apportionment, future medical treatment and the need for vocational rehabilitation.

NOTE: Authority cited: Section 139.2(j)(2), Labor Code. Reference: Sections 139.2(j)(2), 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 5–23–94; operative 6–22–94 (Register 94, No. 21).
2. Amendment of NOTE filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
3. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

### § 48. QME Ethical Guidelines.

NOTE: Authority cited: Sections 139.2(j)(2) and (3) and 5307.3, Labor Code. Reference: Sections 139.2(j)(2) and (3), 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 5–23–94; operative 6–22–94 (Register 94, No. 21).
2. Repealer filed 4–11–95; operative 5–11–95 (Register 95, No. 15).

## Article 4.5. Minimum Time Guidelines

### § 49. Definitions.

The following definitions apply to this Article:

(a) Cardiovascular evaluation. "Cardiovascular evaluation" means the determination of disability due to pathological changes of the heart and/or the central circulatory system.

(b) Face to Face time. "Face to face time" means only that time the evaluator is present with an injured worker. This includes the time in which the evaluator performs such tasks as taking a history, performing a physical examination or discussing the worker's medical condition with the worker. Face to face time excludes time spent on research, records review and report writing. Any time spent with clinical or clerical staff in performing diagnostic or laboratory tests (such as blood tests or x–rays) or time spent by the injured worker in a waiting room or other area outside the evaluation room is not included in face to face time.

(c) Medical evaluation. "Medical evaluation" means a comprehensive medical–legal evaluation as defined under section 9793 of Article 5.6, Subchapter 1, Chapter 4.5 of this Title.

(d) Neuromusculoskeletal evaluation. "Neuromusculoskeletal evaluation" means the determination of disability due to injury to the central nervous systems, the spine and extremities, and the various muscle groups of the body.

(e) Psychiatric evaluation. "Psychiatric evaluation" means the determination, by either a psychiatrist or psychologist following the IMC guidelines on psychiatric protocols, of disability due to psychopathology.

(f) Pulmonary evaluation. "Pulmonary evaluation" means the determination of disability due to pathological changes of the lungs and/or other components of the respiratory system.

(g) QME. "QME" means Qualified Medical Evaluator appointed by the Council pursuant to Labor Code section 139.2.

(h) Uncomplicated evaluation. "Uncomplicated evaluation" means a face to face evaluation in which all of the following are recorded in the medical report: Minimal or no review of records, minimal or no diagnostic studies or laboratory testing, minimal or no research, and minimal or no medical history taking.

NOTE: Authority cited: Section 139, Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. Change without regulatory effect relocating article 4.5 heading and renumbering former section 149 to new section 49 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).
2. Change without regulatory effect amending article heading filed 9–28–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 39).
3. Amendment of subsection (b) filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 49.2. Neuromusculoskeletal Evaluation.

A medical evaluation concerning a claim for neuromusculoskeletal injury (whether specific or cumulative in nature) shall not be completed by a QME in fewer than 20 minutes of face to face time. Twenty minutes is the minimum allowable face to face time for an uncomplicated evaluation. The evaluator shall state in the evaluation report that he or she has complied with these guidelines and explain in detail any variance.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. Change without regulatory effect renumbering former section 149.2 to new section 49.2 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

### § 49.4. Cardiovascular Evaluation.

A medical evaluation concerning a claim for cardiovascular injury (whether specific or cumulative in nature) shall not be completed by a QME in fewer than 30 minutes of face to face time. Thirty minutes is the minimum allowable face to face time for an uncomplicated evaluation. The evaluator shall state in the evaluation report that he or she has complied with these guidelines and explain in detail any variance.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. Change without regulatory effect renumbering former section 149.4 to new section 49.4 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

### § 49.6. Pulmonary Evaluation.

A medical evaluation concerning a claim for pulmonary injury (whether specific or cumulative in nature) shall not be completed by a QME in fewer than 30 minutes of face to face time. Thirty minutes is the minimum allowable face to face time for an uncomplicated evaluation. The evaluator shall state in the evaluation report that he or she has complied with these guidelines and explain in detail any variance.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. Change without regulatory effect renumbering former section 149.6 to new section 49.6 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

### § 49.8. Psychiatric Evaluation.

A medical evaluation concerning a claim for psychiatric injury (whether specific or cumulative in nature) shall not be completed by a QME in less than one hour of face to face time. One hour is considered the minimum allowable face to face time for an uncomplicated evaluation. The evaluator shall state in the evaluation report that he or she has complied with these guidelines and explain in detail any variance.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. Change without regulatory effect renumbering former section 149.8 to new section 49.8 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

### § 49.9. Other Evaluation.

A medical evaluation concerning a claim for any injury (whether specific or cumulative in nature) not specifically included in this article shall not be completed by a QME in fewer than 30 minutes of face to face time. Thirty minutes is the minimum allowable face to face time for an uncomplicated evaluation. The evaluator shall state in the evaluation report that he or she has complied with these guidelines and explain in detail any variance.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. Change without regulatory effect renumbering former section 149.9 to new section 49.9 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

## Article 5. QME Reappointment

### § 50. Reappointment: Requirements and Application Form.

(a) In addition to the eligibility requirements set forth in section 11, a physician may seek reappointment on the basis that he or she was an active QME on June 30, 2000. For all physicians, applications for reappointment shall include a Reappointment Application Form in Section 10.1A, a statement of citizenship form 101 if not previously submitted, and the appropriate fee under Section 17 and shall be filed at the Council's headquarters office.

(b) Any Reappointment Application Form may be rejected if it is incompletely filled out or does not contain the required supporting documentation listed in Section 11. Upon its approval of the Reappointment Application Form, the Council shall verify that the QME has complied with all requirements under this Article.

(c) When a QME applies for reappointment, he or she shall submit a statement signed under penalty of perjury (1) that he or she has completed the education requirement and (2) that lists the dates, locations, and titles of continuing education programs and the names of the providers of those programs which he or she has taken to meet the requirement of Labor Code Section 139.2(d)(3), as well as the number of hours of attendance at each program. The Council may randomly audit QMEs for documentation of program attendance, which supports compliance with this requirement.

NOTE: Authority cited: Sections 139, 139.2, 4060, 4061 and 4062, Labor Code. Reference: Sections 139, 139.2, 4060, 4061, 4061.5 and 4062, Labor Code.

HISTORY

1. New article 5 and repealer and new section filed 8–1–94; operative 8–31–94 (Register 94, No. 31). For prior history, see Register 91, No. 26.
2. Change without regulatory effect amending first paragraph and subsection (i) filed 4–19–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 16).
3. Amendment of article 5 heading and renumbering of former section 50 to new section 53 and new section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
4. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
5. Amendment of section heading and section and new NOTE filed 9–6–2001; operative 10–6–2001 (Register 2001, No. 36).

### § 50.1. Reappointment: Failure to Comply with Time Frames.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Section 139.2(d)(1), Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Change without regulatory effect amending section filed 12–2–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 49).
3. Renumbering of former section 50.1 to section 51 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 50.2. Reappointment: Unavailability Notification.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139.2(d) and 139.2(j)(6), Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Change without regulatory effect amending section filed 12–2–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 49).
3. Renumbering of former section 50.2 to section 52 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 50.3. Reappointment: Evaluations Rejected by Appeals Board.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139.2(d) and 139.2(j)(6), Labor Code.

HISTORY

1. New section filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
2. Renumbering of former section 50.3 to new section 52 filed 8–23–96; operative 9–22–96 (Register 96, No. 34).

### § 51. Reappointment: Failure to Comply with Time Frames.

All QMEs shall comply with the time frames in Sections 34 and 38 as a condition for reappointment. The Council, after hearing pursuant to Section 61, may deny reappointment to any QME who has failed to comply with the evaluation time frames in Section 34 and 38 on at least three occasions during the calendar year.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139.2(d)(1), Labor Code.

HISTORY

1. Repealer and new section filed 8–1–94; operative 8–31–94 (Register 94, No. 31). For prior history, see Register 91, No. 26.
2. Renumbering of former section 51 to new section 60 and new section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Renumbering of former section 51 to section 53 and renumbering of former section 50.1 to section 51 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 52. Reappointment: Unavailability Notification.

All QMEs shall comply with the unavailability notification requirements in Section 33 as a condition for reappointment. The Council, after hearing pursuant to Section 61, may deny reappointment of any QME who has filed notification for unavailability under Section 33 for more than 90 calendar days during the calendar year, or who has on any single occasion refused without good cause to perform a medical-legal evaluation for an unrepresented employee.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139.2(d) and 139.2(j)(6), Labor Code.

HISTORY

1. Repealer and new section filed 8–1–94; operative 8–31–94 (Register 94, No. 31). For prior history, see Register 91, No. 26.

2. Renumbering of former section 52 to new section 61, renumbering of former section 50.3 to new section 52 and amendment of section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Renumbering of former section 52 to section 54 and renumbering of former section 50.2 to section 52 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 53. Reappointment: Failure of Board Certification Examination.

For Medical Doctors or Doctors of Osteopathy, in order to be reappointed, a QME shall submit a declaration under penalty of perjury that, if not board certified at the time for reappointment, he or she has not failed a board certification exam after 1985. This section shall not apply to any physician who meets the requrirment of Labor Code §139.2(b)(3)(C) (D) or (G).

HISTORY

1. Repealer and new section filed 8–1–94; operative 8–31–94 (Register 94, No. 31). For prior history, see Register 91, No. 26.
2. Renumbering of former section 53 to new section 62, renumbering of former section 50 to new section 53 and amendment of section filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
3. Amendment filed 3–15–99; operative 4–14–99 (Register 99, No. 12).
4. Renumbering of former section 53 to section 55 and renumbering of former section 51 to section 53 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 53.1. QME Continuing Education Response Form.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Section 139.2, Labor Code.

HISTORY

1. New section filed 3–15–99; operative 4–14–99 (Register 99, No. 12).
2. Repealer filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 54. Reappointment: Evaluations Rejected by Appeals Board.

The Council, after hearing pursuant to Section 61, may deny reappointment to any QME who has had more than five evaluations rejected by a Workers' Compensation Judge or the Appeals Board originally submitted at a contested hearing. The rejection shall be based on the failure of the QME's evaluation to prove or disprove a contested issue or failure to comply with guidelines promulgated by the Council pursuant to Labor Code Section 139.2(j)(2), (3), (4) or (5). A specific finding must become final and the time for appeal must have expired before any rejected evaluation shall be counted as one of the five rejections.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139.2(d) and 139.2(j)(6), Labor Code.

HISTORY

1. New section filed 5–9–91; operative 5–9–91 (Register 91, No. 26). New section is exempt from review by OAL pursuant to Government Code section 11351(a).
2. Repealer filed 8–1–94; operative 8–31–94 (Register 94, No. 31).
3. Renumbering of former section 52 to section 54 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 55. Reappointment: Continuing Education Programs.

A QME shall complete within the previous 24 months of his or her term of appointment 12 hours of continuing education in disability evaluation or workers' compensation related medical dispute evaluation given by a provider accredited by the Council.

(a) There are two types of continuing education programs:

(1) On–site programs, in which the instructor and QME are in the same location; and

(2) Distance learning programs.

(A) Providers of distance learning programs shall give either a pre– or post–course self–examination based on the program material. The provider shall grade the QME's test. Credit for the course can be given only for a passing rate of no lower than 70 percent correct responses. The Council may audit physicians' examinations and scores.

(B) Credit for distance learning courses shall be granted for the actual time spent viewing, listening to or participating in the program and for the reasonable and necessary time to take the examinations for up to six hours per program. Credit for the same distance learning program may be taken only once.

(C) All distance learning materials shall bear a date of release and shall be updated every three years. The provider shall notify the Council in writing of the revision.

(b) In addition to granting credit for attending a course or program which it gives, the Council may grant credit for:

(1) Participating in a panel on the development or review of the QME competency examination. A physician may receive one hour credit for each hour of participation on a panel. The QME shall obtain documentation of participation from the test administrator for submission to the Council.

(2) Instructing in a program given for QME credit by a provider accredited by the Council. The instructor may receive two hours of credit for each hour of instruction in an accredited provider's program or one hour of credit for each hour of participation on a panel. Credit for the same presentation may be taken only once during each calendar year. The QME shall submit documentation of participation from the program provider to the Council.

(3) Attending a program which is accepted by the QME's licensing board for renewal of his or her professional license, provided the subject matter is directly related to California impairment evaluation or workers' compensation medical dispute evaluation.

To request credit for this type of course, the QME must submit:

(A) proof of attendance;

(B) written material which describes the program content and program faculty; and

(C) documentation that the program is for continuing education credit by the physician's licensing board.

(4) Passing the QME competency examination. A QME may be granted six hours of continuing education credit for passing this examination for the purpose of receiving an initial appointment as a QME.

(c) To apply to the Council for accreditation, a provider shall submit to the Council, at least 60 calendar days before any public advertisement of the applicant's program or course is made:

(1) a completed form 118, in section 118 of these regulations.

(2) A curriculum vitae for each proposed instructor or author (for paper–based programs). A proposed instructor or author shall have education and/or training and recent work experience relevant to the subject of his/her presentation.

(3) The proposed promotional material for the program.

(d) The Council shall accredit an applicant who meets the definition of a provider in Section 1(r); submits a completed, signed and dated application which demonstrates past experience in providing continuing education programs; and proposes a program which meets the requirements of section 55(c) or a course which meets the requirements of section 11.5(a) and (i). Proposed content for continuing education program credit must relate directly to disability evaluation or California workers' compensation–related medical dispute evaluation. No credit shall be recognized by the IMC for material solely discussing the business aspects of workers' compensation medical practice such as billing, coding and marketing.

(e) The Council shall notify the applicant within 30 calendar days following the next scheduled council meeting after receipt of the application containing all the information listed in Section 55(c) whether that provider has been accredited for a two year period. Incomplete applications will be returned to the applicant.

(f) A provider that has been accredited by the Council will be given a number which must be displayed on any public advertisements of QME continuing education programs for that provider with the statement "Accredited by the California Industrial Medical Council for Qualified Medical Evaluator continuing education. Physicians may report up to ___ hours of credit for QME reappointment."

(g) On or before the date the program is first presented or distributed, the provider shall submit the program syllabus (all program handouts) to

the Council. Each distance learning program shall also submit one copy of the examinations and one copy of the audio/video tapes, computer program or each issue of the journal or newsletter for which credit is to be granted.

(h) A provider may offer different QME continuing education programs during the two-year accreditation period provided the subject matter is in disability evaluation or workers' compensation related medical dispute resolution. The provider shall send the Council the program outlined and faculty for each new program at least 45 days prior to the date of presentation of the new program. The Council may require submission of program syllabi. The Council may require changes in the program based on its review of the program outline, program syllabi, promotional material or faculty if the IMC finds that any aspect of the program is not in compliance with these regulations.

(i) Promotional materials for a program must state the provider's educational objectives; the professional qualifications of program faculty (at least all relevant professional degrees); the content of program activities; the maximum number of credit hours to be granted; and the intended audience.

(j) Joint sponsorship of education programs (as between an accredited and an unaccredited provider) must be approved by the Council prior to presentation of the program.

(k) Accredited providers that cease to offer education programs shall notify the Council in writing.

(l) Instructors shall not recruit members or promote commercial products or services immediately before, during or after a course. Providers or vendors may display/sell educational materials related to workers' compensation or applications for membership in an area adjoining a course. A course provider or faculty member shall disclose on IMC form 119, located in section 119, any significant financial interest in or affiliation with any commercial product or service discussed in a course and that interest or affiliation must be disclosed to all attendees. A provider shall file every form 119 in its possession or in its control with the Council.

(m) The provider shall issue a certificate of completion to each QME who successfully completes a continuing education program. The certificate must list the provider; provider number; date(s); location and title of the continuing education program; and the number of hours in attendance for which credit is to be granted. Credit shall be granted only for the actual time of attendance at or participation in a program. Each accredited provider may in its sole discretion limit the amount of credit hours that a course will be granted to less than the amount of time actually spent in attendance in the course.

(n) To apply for re-accreditation, a provider must submit a completed IMC Form 118. The provider may complete section 2 of the form using a new program or course or one which was given by the provider during the recent accreditation period. The Council shall give the provider 90 days' notice of the need to seek re-accreditation.

(o) The provider shall maintain attendance records for each continuing education program for a period of no less than three years after the program is given. A physician attending the program must be identified by signature. The provider must submit a copy of the signature list to the Council within 60 days of completion of the program.

(p) The provider is required to give the IMC's Evaluation Form 117 to program attendees and request they submit the form to the IMC. This information shall not be used in lieu of a certification of completion given by the provider, as specified pursuant to section (m). Destruction by a provider or its employee of a QME's Evaluation Form or failure by such provider or its employee to distribute Form 117 as part of its program shall constitute grounds for revocation of a provider's accredited status. The Council shall tabulate the responses and return a summary to the provider within 90 days of completion of the program.

(q) The Council may audit a provider's program(s) at the request of the medical director to determine if the provider meets the criteria for accreditation. The Council may audit programs randomly, when a complaint is received, or on the basis of responses on IMC Form 117. An auditor shall not receive QME credit for an audited program. The Council shall make written results of the audit available to the provider no more than 30 days after the audit is completed.

(r) The Council may withdraw accreditation of a provider or deny such a provider's application for accreditation on the following grounds (in addition to failure to meet the relevant requirements of subsection 11.5(a) or 55(c)):

(1) Conviction of a felony or any offense substantially related to the activities of the provider.

(2) Any material misrepresentation of fact made by the provider.

(3) Failure to comply with Council regulations.

(4) False or misleading advertising.

(5) Failure to comply with Council recommendations following an audit.

(6) Failure to distribute Council Form 117 cards to program attendees.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 5-9-91; operative 5-9-91 (Register 91, No. 26). New section is exempt from review by OAL pursuant to Government Code section 11351(a).
2. Repealer filed 8-1-94; operative 8-31-94 (Register 94, No. 31).
3. Renumbering of former section 53 to section 55 filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).
4. Amendment of section heading and section filed 9-6-2001; operative 10-6-2001 (Register 2001, No. 36).

### § 56. Reappointment: Failure to Comply with WCAB Order or Ruling.

The Council, after hearing pursuant to Section 61, may deny reappointment to any QME who has been found in violation of any order or ruling by a Workers' Compensation Judge or the Appeals Board.

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Sections 139.2(d) and 139.2(j)(6), Labor Code.

HISTORY

1. New section filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.

### § 57. Reappointment: Professional Standard—Violation of Business and Professions Code Section 730.

The Council, after hearing pursuant to Section 61, may deny reappointment to any QME who has performed a QME Evaluation without QME Certification.

NOTE: Authority cited: Section 139.2, Labor Code; and Section 730, Business and Professions Code. Reference: Sections 139.2(d) and 139.2(j)(6), Labor Code; and Section 730, Business and Professions Code.

HISTORY

1. New section filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

## Article 6. QME Discipline

### § 60. Discipline.

(a) The Council may, in its discretion, suspend or terminate any physician from the QME list without hearing:

(1) whose license has been revoked;

(2) whose license has been suspended or terminated by the relevant licensing board so as to preclude practice;

(3) who has been convicted of a misdemeanor or felony related to the conduct of his or her practice or who has been suspended or placed on probation by his or her licensing board;

(4) based on a stipulation or a decision by the physician's licensing board that the physician has been placed on probation;

(5) who has failed to pay timely the appropriate fee as required under section 17.

(b) The council may, based on a complaint by the Medical Director, and following a hearing pursuant to Section 61, suspend, terminate or place on probation a QME found in violation of a statutory or administrative duty as described in the IMC Sanction Guidelines under Section 65 of these regulations. Such violations include, but are not limited to:

(1) one violation of Labor Code Section 139.3 or 4628;

(2) failure to follow the medical procedures established by the Council pursuant to Labor Code Section 139.2(j)(1)(2)(3)(4)(5) or (6);

(3) failure to comply with the requirements of Labor Code Section 139.2(b) or (c) and/or Section 10, 10.5, 11 or 12 of these regulations;

(4) failure to comply with the unavailability notification requirements pursuant to Section 33.

(5) failure to comply with the disclosure and ethical requirements pursuant to Sections 40 and 41;

(6) failure to complete accurate and complete reports pursuant to Labor Code Section 139.2(i) or to comply with section 39.5 of these regulations.

(7) A finding by the Appeals Board of ex parte contact by the QME prohibited by Labor Code Section 4062.2.

(8) A finding by the Council that the QME solicited an injured worker to take over that worker's treatment for his or her workers compensation claim.

(c) The Medical Director may file a complaint with the Council against a QME on any of the grounds listed in subsection (b) based on a complaint from a member of the public and/or the Medical Director's own initiative. The Medical Director may assign legal counsel and investigators to conduct all matters related to this Article.

(d) A report prepared by a QME which has not been completed and served on one or more parties prior to the date of the final decision taken by the licensing board or the date of the conviction, whichever is earlier, shall be inadmissible before the Appeals Board and no party shall have liability for payment for the report.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Section 139.2, Labor Code.

HISTORY

1. New article 6 (sections 60–62), renumbering of former section 51 to new section 60, repealer and new subsection (a), amendment of subsection (b), new subsection (b)(6) and subsection renumbering, and new subsections (b)(8) and (d) filed 8–23–96; operative 9–22–96 (Register 96, No. 34).
2. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## § 61. Hearing Procedure.

(a) Where the Medical Director determines that there is a prima facie evidence of any violation of Section 60, he or she shall make and submit a prima facie case of the violation to a committee within the Council assigned to review disciplinary matters.

(b) If the Committee sustains the Medical Director's prima facie case, the QME shall be notified in writing of the determination and shall also be notified of his or her right to a hearing in accordance with Chapter 4 (commencing with Section 11370) and Chapter 5 (commencing with Section 11500) and Part 1 of Division 3 of the Government Code.

(1) The committee may, not withstanding Government Code Section 11502, assign the hearing to a hearing officer designated by the Medical Director who shall act as an Administrative Law Judge for the purposes of Government Code Sections 11370 et. seq. and 11500 et. seq., or may delegate in whole or in part to an Administrative Law Judge the authority to conduct the hearing and decide the case. In the event of a hearing, the hearing officer or Administrative Law Judge shall fix the time and place of the hearing and notify interested parties in writing no fewer than 10 days in advance of the hearing and in accordance with Code or Civil Pro-

[The next page is 2.24(z)(55).]

cedure Sections 1013(a) and 2015.5 specifying the time and place of the hearing.

(2) If an Administrative Law Judge conducts a hearing, the Administrative Law Judge selected to preside over the hearing shall hear the case alone, and exercise all powers related to the conduct of the hearing.

(3) Upon a decision being made regarding the prima facie case, the Administrative Law Judge or hearing officer shall file a written statement of findings and decisions with the full Council. The decision made pursuant to this action shall include specific findings in accordance with Section 60(b), and under Section 65 of these Regulations shall recommend, but defer to the Council the final decision, with respect to sanctions. The Council shall, at the next scheduled Council meeting, accept, alter, or not adopt the proposed decision.

(4) The Council's decision on which sanction(s) to impose on a QME, pursuant to Labor Code Section 139.2(k) or any other statute giving the Council disciplinary authority, shall be in accordance with the IMC Sanction Guidelines under Section 65 of this Title.

(5) In accordance with Government Code Section 11517(c), if the proposed decision is not adopted by the Council, the Council shall determine in accordance with Labor Code Section 139(g) whether or not to decide the case as a body, based on the record and transcript, and/or whether or not to take additional evidence or to refer the case back to the Administrative Law Judge to take additional evidence on any issue or issues requested by the Council.

(6) Within 30 days of the date the written decision is served upon the QME, the QME may file a petition for reconsideration with the Council. The petition shall be governed by Government Code Section 11521 and shall set forth any legal or factual basis as to why the decision should not be confirmed. The Council Chairperson(s) shall appoint a three member panel, (excluding members of the committee) to review the physician's petition.

(c) Judicial Review of the Council's decision may be had by the filing of a petition for writ of mandate pursuant to Government Code Section 11523 no later than 30 days after the last day on which the Council can order reconsideration in accordance with (b)(6) of this Section.

NOTE: Authority cited: Sections 133, 139, 139.2, 5307.3 and 5307.4, Labor Code; and Sections 11370 et seq. and 11500 et seq., Government Code. Reference: Section 139.2, Labor Code; and Sections 11502 et seq., Government Code.

HISTORY

1. Renumbering of former section 52 to new section 61, and amendment of subsections (c) and (d) filed 8-23-96; operative 9-22-96 (Register 96, No. 34).
2. Repealer and new section and amendment of NOTE filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

## § 62. Probation.

(a) A physician on probationary status from his or her licensing authority may be placed on probationary status by the Council in its discretion in accordance with IMC Sanction Guidelines under Section 65 of this Title.

(b) A QME on probationary status from the Council may be required to report periodically to the Medical Director to ensure compliance with any conditions of probation that have been imposed by the Council. These conditions may include the completion of specific courses and training.

(c) A QME shall be deemed to have passed probation and be eligible for reappointment if he or she has complied with the conditions imposed by the Council during the probation period, and meets the requirements for reappointment in accordance with Article 5.

(d) A QME shall be deemed to have failed probation if upon completion of the probation period it is determined that he or she has not complied with the conditions imposed by the Council during the probation period, and/or has failed to meet the requirements for reappointment in accordance with Article 5.

(e) The Council shall terminate probation, which shall be equivalent to a failure to pass probation, before completion of the probation period if during the probation period it is determined that a QME has not complied with the conditions of probation.

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061 and 4062, Labor Code.

HISTORY

1. Renumbering of former section 53 to new section 62, new subsection (a) and subsection relettering, and amendment of subsections (c) and (d) filed 8-23-96; operative 9-22-96 (Register 96, No. 34).
2. Amendment of subsections (a), (c) and (d) filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

## § 65. Sanction Guidelines.

The guidelines for determining appropriate sanctions for physicians licensed as Qualified Medical Evaluators shall be set forth in the Sanction Guidelines as adopted by the Industrial Medical Council on October 21, 1999.

### 65. Sanction Guidelines for Qualified Medical Evaluators

**Part One**

**I. Overview**

The purpose of these guidelines is to provide a framework of the Industrial Medical Council (IMC) disciplinary process for those affected by it – Qualified Medical Evaluators, the IMC, administrative law judges with the Office of Administrative Hearings, licensing boards and other interested parties. These guidelines are not intended to be an exhaustive list of violations or disciplinary actions that the IMC may consider against any QME. Any violation of statutory or administrative duties may constitute grounds for discipline under these guidelines.

The IMC believes that education is the most effective course of action in resolving less serious regulatory violations. These guidelines also set out the parameters for discipline for misconduct considered serious.

The IMC recognizes the need to promulgate uniform guidelines for particular violations in order to establish consistency in imposing disciplinary sanctions for similar offenses. The IMC also recognizes that mitigating or aggravating circumstances in a specific case may necessitate variance from these guidelines.

In the event of a hearing, if an administrative law judge finds that the circumstances of a particular case are not adequately addressed in these guidelines, the IMC may request that the administrative law judge include in the proposed decision an explanation of the recommended sanction and/or terms of probation, so those circumstances are better understood by the IMC during its review of the case for ultimate action.

**II. Factors to be Considered in Determining Disciplinary Penalties**

In cases of violations of Labor Code sections 139.2(k) and 139.2(m) and/or section 60 of Title 8 of the California Code of Regulations, the IMC may impose discipline, up to and including suspension or termination, upon any physician certified by the IMC as a Qualified Medical Evaluator.

In determining the level of the penalty to be imposed in a given case, the following factors (8 CCR § 61) shall be considered:

(1) the seriousness of the violation including actual or potential harm to the public and any mitigating or rehabilitation evidence;

(2) whether or not a violation is an isolated incident or part of a pattern of behavior indicative of a disregard for the QME rules; e.g. (prior warnings of record; number and/or variety of current violations, time passed since the act(s) or offense(s));

(3) whether or not a violation is intentional as opposed to negligent;

(4) whether or not there is a history of previous violations cited under this section or by another court or tribunal (e.g.: prior disciplinary record, including level of compliance with disciplinary orders, compliance with terms of any criminal sentence, overall criminal record); and

(5) whether or not further education or training would be beneficial.

**III. Mitigating Evidence**

A respondent may present evidence at a hearing or in the settlement process and shall have the burden of demonstrating mitigating circumstances and/or any rehabilitative or corrective measures he or she has taken. The IMC does not intend, by the following references to written statements, letters, and reports, to waive any evidentiary objections to the form of such evidence. The following are examples of appropriate evidence a respondent may submit to demonstrate his/her rehabilitative efforts and competency:

a. Recent, dated written statements from persons in positions of authority who have on–the–job knowledge of the respondent's current competence in the practice of his or her specialty. Each statement should include the period of time and capacity in which the person worked with the respondent and should be signed under penalty of perjury. All letters will be subject to verification by IMC staff.

b. Recent, dated letters from counselors regarding the respondent's participation in a rehabilitation or recovery program, where appropriate. These should include at least a description and requirements of the program, a psychiatric diagnosis and current state of recovery and the psychiatrist's/psychologist's basis for determining need for rehabilitation.

c. Recent, dated letters describing respondent's participation in support groups, (e. g. Alcoholics Anonymous, Narcotics Anonymous, Professional Support Groups, etc.), where appropriate.

d. Recent, dated laboratory analyses or drug screen reports, where appropriate.

e. Recent, dated performance evaluation(s) from the respondent's employer(s).

f. Recent, dated physical examination or assessment report by a licensed physician, if appropriate.

In the above examples, the mitigating circumstances and/or rehabilitative efforts shall be detailed in any proposed decision or any transmittal memorandum accompanying a proposed stipulation.

**IV. Terms of Probation**

If probation is imposed as part of a disciplinary action, the probation shall include: (1) Standard conditions, which will apply in all cases; and may include (2) Optional conditions, which will vary according to the nature of the offense(s) in the particular case.

A. Standard Conditions

The number in parenthesis refers to the paragraph number found in the sample Model Disciplinary Order, found in Part II of these guidelines.

1. Obey all laws (#7);
2. File quarterly reports (#8);
3. Probation surveillance program compliance (#9);
4. Interviews with the Council's designee (#10);
5. Notation of probationary QME status (33);
6. Tolling of probation, if out of state or while QME status inactive (#11);
7. Violation of probation extends Council jurisdiction (#13);
8. Reporting probationary status to Licensing Board (#6);
9. Reporting probationary status to parties since date of prior licensing board action or prior conviction (#6);
10. QME certificate surrender (if suspended or terminated)(#14).

B. Optional Sanctions and Conditions of Probation

The following optional sanctions and conditions of probation may be imposed by the Council for proven or stipulated violations of the statutes or regulations cited.

Range of Optional Conditions:

1. Completion of a continuing education and/or ethics course related to the misconduct resulting in discipline (#17);
2. Completion of a QME ethics course (#17);
3. Monitoring of practice by another physician in the same area of practice, with periodic reports to the IMC (#23);
4. Pass a written exam administered by the IMC (#19);
5. Pass an oral exam administered by the IMC (#19);
6. (For sexual transgressions) Requiring the presence of a designated third person during all medical/legal exams (#21);
7. Undergo psychiatric evaluation and/or psychiatric treatment (#24, #25);
8. Structured supervised practice (#22);
9. Undergo medical evaluation or treatment (#26, #27);
10. Abstain from drugs (#31);
11. Abstain from alcohol (#33);
12. Biological fluid testing (#29);
13. Maintain Controlled Substances Log (#32);
14. Diversion program (#30);
15. Restitution of monies received (#20);
16. Actual suspension during probation (#16);
17. Require QME to submit up to the next 5 med/legal reports to IMC (#34);
18. Print and distribute corrected information after advertising violation (#36).

The IMC may also impose other conditions appropriate to the case which are not contrary to public policy or existing law.

**V. Violations of material statutory or administrative duties and Recommended Sanctions**

The IMC may impose disciplinary sanctions for violations by a Qualified Medical Evaluator of any material statutory or administrative duty (Labor Code § 139.2(k)(1)).

Actions by a Qualified Medical Evaluator for which disciplinary action is appropriate are specified in the California Labor Code, the California Business and Professions Code, the California Penal Code, and Titles 8 and 16 of the CCR.

Accordingly, the following, disciplinary sanctions shall be applied by the IMC when a QME is found to be in violation of a material statutory and/or administrative duty.

**A. Maximum Sanctions**

1. Maximum Sanction: Revocation of QME status.
2. Violations of material statutory administrative duties which shall result in the maximum sanctions are:

a. Professional licensure has been terminated (LC § 139.2(m));

b. Conviction of a felony or misdemeanor (including billing/insurance fraud) related to the conduct of the physician's practice (LC § 139.2(m));

c. Conviction of a felony or misdemeanor for a crime of moral turpitude (LC § 139.2(m));

d. Arranging for the impersonation of or impersonating a physician in the QME competency exam;

e. Arranging for the impersonation of or impersonating another physician during QME evaluation;

f. Performing QME evaluations without QME certificate or while knowing that their QME status is suspended;

g. Failure to file a notice of defense to an accusation filed by the IMC or failure to appear at disciplinary hearing initiated by the IMC;

h. Failure to pay the required QME fee (LC § 139.2(n));

i. False statements made under penalty of perjury relating to applicant/QME licensing and/or specialty credentials.

3. If warranted, the maximum penalty can be imposed in any case.

**B. Violations of Material Statutory/Administrative Duties Which May Result in Alternative Sanctions**

1. Sexual Misconduct – LC § 139.2(k); BPC § 726

*Minimum* sanction: Stayed revocation, 7 years probation and:

1. Approved education course on sexual harassment, to be completed within 90 days (#17); and

2. Require third party present during all workers' compensation related evaluations and treatment (# 21); and

If warranted, any of all of the following:

1. Psychiatric evaluation and/or psychotherapy (#24, #25);

2. Required supervised workers' compensation related practice environment (#22 or #23);

3. Actual suspension at least one (1) year, under the criteria of Section II.

2. Abuse of Drugs or Alcohol and/or Intoxication While Evaluating or Treating Patients (LC § 139.2(k); BPC § 2239; BPC § 2240)

*Minimum* sanction: Stayed revocation, five (5) years probation and:

1. Evaluation by Diversion Program of appropriate licensing board and follow its recommendations;

2. If a Diversion Program is not available through the licensing board, then will be evaluated by an alcohol/drug rehabilitation program acceptable to the IMC and will follow its recommendations;

3. Allow the pertinent program to report on status to the IMC;

4. Abstain from use (#31, #33); and

If warranted:

5. Cease performing QME evaluation while being evaluated by the Diversion Program;
6. Biological fluid testing (#29);
7. Maintain controlled substances log (#32);
8. Structured supervised practice (#22);
9. Monitored practice (#23);
10. Oral or written exam (#19);
11. Actual suspension.

3. Billing/Insurance Fraud or Submitting False Documents (LC § 139.2(k); BPC § 2234(e); BPC § 2261; BPC § 810)

*Minimum* sanction: Stayed revocation and 5 years probation, and:
If warranted, any or all of the following:
1. Approved ethics course within 90 days (#17);
2. Restitution of amounts received (#20);
3. Pass oral or written exam (#19);
4. Actual suspension at least 6 months, under the factors of Section II;
5. Maximum sanctions.

4. False Statements Made Under Penalty of Perjury on IMC Application Forms or Other IMC Documents (LC § 139.2(k); 8 CCR § 11; LC § 139.2(b); LC § 139.2(c); LC § 139.2(d); BPC § 2234(e); BPC § 2261)

(Ex.: False statement on QME exam application, appointment application or reappointment application regarding:
– probationary professional license status;
– past criminal conviction related to professional practice;
– completion of minimum continuing education, teaching or practice criteria for appointment or reappointment;
– time spent in direct patient treatment;
– number of QME or AME evaluations done in prior year(s) for purpose of annual fee or for reappointment;
– extent of AME work in lieu of direct patient treatment;
(Representing self as QME with active status when status lapsed).

*Minimum* sanction: Stayed revocation and 5 years probation, and:
If warranted, any or all of the following:
1. Actual suspension at least 90 days (#16) under the factor of Section II;
2. Approved ethics course within 90 days (#17).

5. Advertising Violations – LC § 139.2(k); LC § 139.4; LC §§ 5430–5434; 8 Cal. Code Regs. § 153; 8 Cal. Code Regs. §§ 9820–9837
– misleading or deceptive advertising – BPC § 2271, 651
– failure to include required fraud warning – LC §§ 5432, 5433
– anonymous advertising – BPC § 2272
– misuse of title 'M.D.', 'D.O.', 'doctor', etc. §§ 2275, 2276
– use of fictitious name without permit (BPC § 2285)

*Minimum* sanction: Educational material to be provided by the IMC, and:
If warranted, any or all of the following:
1. Stayed revocation 3 years probation;
2. Approved ethics course within 90 days (#17);
3. Oral or written exam by IMC (#19);
4. Print and distribute correct information (#37);
5. Pay for ad(s) in WC publications advising readers of statutes and regulations on permissible advertising (#38);
6. Actual suspension at least 90 days (#16) under the factors of Section II;
7. Maximum sanctions.

6. Soliciting or Providing Treatment in Course of QME Evaluation – LC 139.2(k); 8 CCR § 11(d)

*Minimum* sanction: Educational material to be provided by the IMC, and:
If warranted, any or all of the following:
1. Stayed revocation, one (1) year probation;
2. Approved ethics course (#17) within 90 days;
3. Restitution of amounts received for report to payor (#20);
4. Actual suspension at least 30 days (#16) under the factors of Section II.

7. Self Interested Referral (LC § 139.2(k); LC § 3215; 8 CCR § 41(c)(1); LC § 139.3)

*Minimum* sanction: Educational materials to be provided by IMC, and:
If warranted, any or all of the following:
1. Stayed revocation and five (5) years probation;
2. Restitution of amounts received from unlawful referrals (#20);
3. Approved ethics course within 90 days (#17);
4. Actual suspension one (1) year (#16), under the factors of Section II;
5. Maximum sanctions.

8. Ex Parte Communication – LC § 139.2(k), LC § 4062.2, 8 CCR § 41(b)

*Minimum* sanction: Educational material to be provided by the IMC, and:
If warranted, any or all of the following:
1. Stayed revocation, one (1) year probation;
2. Approved ethics course within 90 days (#17);
3. Restitution of amounts received for report to payor (#20);
4. Actual suspension at least 30 days, under the factors of Section II;
5. Maximum sanctions.

9. Violations of QME Ethical and/or other Regulations
– refusing to schedule unrepresented cases (8 CCR § 41(a)(2))
– routinely requiring IWs to wait over one hour (8 CCR § 41)
– rescheduling panel QME exam 3 or more times per case (8 CCR § 41(a)(2))
– switching location of QME exam to address not on QME panel letter (8 CCR § 34(b))
– failing to serve QME appointment notification form/3 or more instances (8 CCR § 34(a))
– failure to submit evaluations upon request by the Medical Director

*Minimum* sanction: Educational material to be provided by the IMC
If warranted, any or all of the following:
1. Stayed revocation six (6) months probation under the factors of Section II;
2. Approved ethics course within 90 days (#17);
3. Oral or written exam by IMC (#19);
4. Actual suspension up to 180 days (#16) under the criteria of Section II.
5. Maximum sanction.

10. False Statements in Medical/Legal Report (LC § 139.2(k); 8 CCR § 41(c)(4); LC § 4628, Including Ghostwriting)
– Involving a reckless disregard for available information or facts known to the physician.

*Minimum* sanction: Stayed revocation and five (5) years probation, with:
1. Approved ethics course within 90 days (#17); and
If warranted, any or all of the following:
2. Actual suspension, up to one year under the factors of Section II or
3. Maximum sanctions.

11. Failure to Spend Requisite Face–to–Face Time
– minimum face–to–face time in evaluation (LC § 139.2(k); LC § 4628; 8 CCR § 49 et seq.)
– in billing for medical/legal report (LC § 139.2(k); LC § 4628; 8 CCR § 9795).

*Minimum* sanction: Educational materials to be provided by the IMC.:
If warranted, any or all of the following:
1. Stayed revocation, up to one (1) year probation and
2. Approved education course on related workers' compensation billing regulations (#17);
3. Restitution to payor (#20);
4. Approved ethics course, to be completed within 90 days (#17);
5. Actual suspension of at least 90 days, under the factors of Section II;
6. Maximum sanctions.

12. Knowing Misrepresentation or Intentional – Failure to Disclose Roles of Others Assisting with Medical/Legal Evaluation or Report – LC

§ 139.2(k); LC § 4628. Interference or Obstruction of an Investigation by the Medical Director into a Complaint Against a QME LC 139.2(J)(6).

*Minimum* sanction: Stayed revocation, one (1) year probation, and:

If warranted, any or all of the following:

1. Educational material to be provided by the IMC;
2. Approved ethics course within 90 days (#17);
3. Restitution of amounts received for report to payor (#20);
4. Actual suspension at least 90 days, under the criteria of Section II (#16);
5. Maximum sanctions.

13. Performing Unnecessary Medical Tests in Capacity as QME or AME (LC § 139.2(k); 8 CCR § 41(a)(3); BPC § 725; BPC § 2234(e))

*Minimum* sanction: Educational material to be provided by the IMC, and:

If warranted, any or all of the following:

1. Stayed revocation and up to five (5) years probation, and;
2. Restitution of amounts received for unnecessary tests (#20);
3. Pass oral or written exam (#19);
4. Completion of an approved clinical course (#18);
5. Approved ethics course within 90 days (#17);
6. Actual suspension, at least 90 days under the factors of Section II;
7. Maximum sanctions.

14. Late Reports – LC § 139.2(k); LC § 139.2(j)(1); 8 CCR § 38; 8 CCR § 60(b)(4) (3 or more instances)

*Minimum* sanction: Educational material to be provided by the IMC, and:

If warranted, any or all of the following:

1. Stayed of revocation, six (6) months probation;
2. Approved ethics and/or office management course within 90 days (17);
3. Suspension of 30 days (#16) under the factors of Section II.

15. Failure to Follow IMC Evaluation Guidelines (LC § 139.2(h); LC § 139.2(k); LC § 4628; 8 CCR § 41(c)(5))

– Involving 3 or more instances

*Minimum* sanction: Educational material to be provided by the IMC, and:

If warranted, any or all of the following:

1. Approved course in medical/legal report writing within 90 days (#17);
2. Stayed revocation, one (1) year probation;
3. Actual suspension 30 days (#16), under the factors of Section II.

16. Report Deficiencies (LC § 139.2(k))

– Defective declaration(s) required by LC § 4628;
– Serving an unsigned report;
– Omitting discussion in a report of relevant information provided to QME;
– Inadequate or incorrect discussion of factors of disability;
– Other report deficiencies identified by IMC quality review panel;
– Determinations by DEU that a report is not ratable;
– Decisions of Administrative Director granting rating reconsideration;
– Omitting declaration(s) required by LC § 4628.

Minimum sanction: Educational material to be provided by the IMC, and:

If warranted, any or all of the following:

1. Require QME to submit up to five medical/legal reports to the IMC medical/legal quality review staff (#35);
2. Approved course(s) in medical/legal report writing within 90 days (#17);
3. Oral or written exam by IMC (#19);
4. Probation (six (6) months).

17. Report Deficiencies Affecting Admissibility (LC § 139.2(k))

– Three Finding(s) by WCJ under LC § 4628(e) or LC § 139.2(d)(2)

Minimum sanction: Stayed revocation, one (1) year probation, and:

If warranted, any or all of the following:

1. Approved course(s) in medical/legal report writing within 90 days (#17);
2. Require QME to submit next five medical/legal reports to the IMC medical/legal quality review staff (#35);
3. Oral or written exam by IMC (#19).

18. Violation of Probation

*Minimum* sanction: Impose an actual period of suspension (Refer to #3, #4, or #5)

**Part Two. Sample Model Orders**

1. Revocation – Single Cause

QME certificate number(s) _____ issued to Respondent _____ is/are revoked.

2. Revocation – Multiple Causes

QME certificate number(s) _____ issued to Respondent _____ is/are revoked, pursuant to the Determination of Issues (Ex. I, II, and III separately and for all of them.)

3. Actual Suspension – Single Cause

QME certificate number(s) _____issued to Respondent _____ is/are suspended for (state time period). Actual suspension starts on the 16th day after the effective date of this decision.

4. Actual Suspension – Multiple Causes (To Run Concurrently)

QME certificate number(s) _____ issued to Respondent _____ is/are suspended for (state time period), pursuant to Determination of Issues (enter ¶ numbers), separately and for all of them. All suspensions shall run concurrently. Actual suspension starts on the 16th day after the effective date of this decision.

5. Actual Suspension – Multiple Causes (To Run Consecutively)

QME certificate number(s) _____ issued to Respondent _____ is/are suspended for (state time period), pursuant to Determination of Issues (enter ¶ number(s)); and (state time period),pursuant to Determination of Issues (enter ¶ number(s)). These suspension shall run consecutively, for a total period of (enter total time period). Actual suspension starts on the 16th day after the effective date of this decision.

6. Standard Stay Order

However, (revocation/suspension) is stayed and Respondent _____ is placed on probation for (enter time period) upon the following terms and conditions. Within 15 days after the effective date of this decision, the Respondent shall provide the Industrial Medical Council (IMC), or its designee, proof that Respondent has served a true copy of this decision on:

(a) Respondent's professional licensing board in California;

(b) Every party for whom Respondent has a pending QME or AME evaluation exam or medical/legal report due;

(c) The administrative Director of the Division of Workers' Compensation, for distribution to Workers' Compensation Administrative Law Judges;

(d) The President of the California Applicants' Attorneys Association;

(e) The President of the California Defense Attorneys Association.

In the event Respondent's probation was imposed by the IMC pursuant to Labor Code § 139.2(m), due to an order by Respondent's professional licensing board which suspended or imposed probationary status on Respondent's professional license, or due to a misdemeanor or felony conviction related to Respondent's practice or for a crime of moral turpitude, Respondent shall also provide the IMC proof that a true copy of this decision was served on every party for whom Respondent wrote a medical/legal report from the date of the licensing board action or the date of the criminal conviction until the effective date of this decision.

**Other Standard Conditions of Probation**

7. Obey All Laws

Respondent shall obey all federal, state and local laws and regulations, all rules governing practice as a Qualified Medical Evaluator, all rules in California governing Respondent's professional area of practice, and remain in full compliance with any court ordered criminal probation, payments and other orders.

8. Quarterly Reports

Respondent shall submit quarterly declarations under penalty of perjury on forms provided by the IMC, stating whether there has been compliance with all the conditions of probation.

9. Probation Surveillance Program Compliance

Respondent shall comply with the IMC's probation surveillance program. Respondent shall, at all times, keep the IMC informed of his or her addresses of business and residence which shall both serve as addresses of record. Changes of such addresses shall be immediately communicated in writing to the assigned IMC probation monitor. Under no circumstances shall a post office box serve as an address of record.

Respondent shall also immediately inform the IMC, in writing, of any travel to any areas outside the jurisdiction of California which lasts, or is contemplated to last, more than thirty (30) days.

10. Interview with the IMC, its Designee or its Designated Physicians

Respondent shall appear in person for interviews with the IMC, its designee or its designated physician(s) or medical consultant(s), upon request at various intervals and with reasonable notice.

11. Tolling for Out-of-State Practice or Residence, for Periods of Inactive QME Status, or for In-State Non-Practice

In the event Respondent should leave California to reside or to practice outside the State, or for any reason should Respondent's QME status become inactive in California, Respondent shall notify the IMC probation monitor in writing within ten (10) days of the dates of departure and return, or the dates of inactive QME status in California. Non practice is defined as any period of time exceeding thirty (30) days in which Respondent is not engaging in any activities defined in sections 2051 and 2052 of the Business and Professions Code. All time spent in an intensive training program approved by the IMC or its designee shall be considered as time spent in practice.

Periods of temporary permanent residence or practice outside California or periods of non-practice within California, as defined in this condition, will not apply to the reduction of the probationary period.

12. Completion of Probation

Upon successful completion of probation, Respondent's QME certificate(s) shall be fully restored.

13. Violation of Probation

If Respondent violates probation in any respect, the IMC, after giving Respondent notice and the opportunity to be heard, may revoke probation and carry out the disciplinary order that was stayed. If an accusation or petition to revoke probation is filed against Respondent during probation, the IMC shall have continuing jurisdiction until the matter is final and the period of probation shall be extended until the matter of the new accusation or petition to revoke is final.

14. QME Certificate Surrender

Following the effective date of this decision, if Respondent ceases practicing as a Qualified Medical Evaluator, due to retirement, health reasons or is otherwise unable to satisfy the terms and conditions of probation, Respondent may voluntarily tender his/her QME certificate(s) to the IMC. The IMC reserves the right to evaluate Respondent's request and to exercise its discretion whether to grant the request, or to take any other action deemed appropriate and reasonable under the circumstances. Upon formal acceptance of the tendered QME certificate(s), Respondent will no longer be subject to the terms and conditions of probation.

15. Notation of Probationary QME Status

Upon the effective date of this decision, the IMC shall make a notation on each letter sent to an unrepresented injured worker, which lists Respondent's name on a panel of QMEs, indicating that Respondent is currently on probation as a QME. IMC also shall make a notation next to Respondent's name wherever it appears in each QME roster issued during the period in which Respondent is on probation on the date the roster is issued. Respondent shall answer truthfully any questions from injured workers or other parties about Respondent's probationary QME status.

**Optional Conditions of Probation**

16. Actual Suspension as Part of Probation

As part of probation, Respondent is suspended from performing any function as a Qualified Medical Evaluator or an Agreed Medical Evaluator for (enter total time period for suspension), beginning on the sixteenth (16th) day after the effective date of this decision.

17. Approved Ethics or other Educational Course

Within thirty (30) days of the effective date of this decision, Respondent shall submit to the IMC or its designee for its prior approval an educational course on forensic evaluator ethics, or on matters related to the violation(s) charged in the accusation, or both. Said course(s) shall be successfully completed by Respondent (enter time for completion), and in any event no later than during the first year of probation. Respondent shall provide the IMC or its designee with proof of attendance at such course(s).

Completion of any such course required as a term of probation shall be in addition to the continuing medical education requirements for reappointment as a Qualified Medical Evaluator.

Following completion of each course ordered as a term of probation, the IMC or its designee may administer an examination to test Respondent's knowledge of the course(s).

18. Clinical Training

Within sixty (60) days of the effective date of this decision, Respondent shall submit to the IMC for its prior approval a clinical training or educational program. The exact number of hours and the specific content of the program shall be determined by the IMC or its designee and shall be related to the violations charged in the accusation. Respondent shall successfully complete the training program and may be required to pass an examination administered by the IMC or its designee related to the program's contents prior to performing work as a Qualified Medical Evaluator or Agreed Medical Evaluator.

19. Oral, Clinical or Written Exam

Within sixty (60) days of the effective date of this decision, (or upon completion of the required education or ethics course) (or upon completion of the required clinical training program), Respondent shall take and pass a(n) (oral, clinical and/or written) examination to be administered by the IMC or its designee. If Respondent fails this examination, Respondent must wait three months between reexaminations, except that after three failures Respondent must wait one year to take each necessary reexamination thereafter. Respondent shall pay the costs of all examinations.

(Use either of the following paragraphs with the above paragraph):

Option #1: Condition Precedent

Respondent shall not perform any functions as a Qualified Medical Evaluator or Agreed Medical Evaluator until Respondent has passed this examination and has been so notified by the IMC in writing.

Option #2: Condition Subsequent

If Respondent fails to take and pass the first examination,Respondent shall cease performing any functions as a Qualified Medical Evaluator or an Agreed Medical Evaluator until this examination has been successfully passed and Respondent has been so notified by the IMC in writing.

20. Restitution

Respondent shall provide restitution to _____in the amount of $ _____ prior to completion of the first year of probation.

21. Third Party Presence – Sexual Transgressions

During probation, Respondent shall have a third party present while examining, evaluating or treating (enter appropriate: male/female/minor) injured workers. Respondent shall, within fifteen (15) days of the effective date of the decision, submit to the IMC or its designee, for its approval, the name(s), business and home phone number(s), and business address, of the persons who will act as the third party present. Respondent shall execute a written release authorizing the designated third party(s) to divulge any information that the IMC may request during interviews by the probation monitor on a periodic basis.

22. Supervised Structured Practice

Respondent is prohibited from engaging in solo practice. Within thirty (30) days of the effective date of this decision, Respondent shall submit to the IMC and receive its prior approval for a plan of practice limited to a supervised, structured environment in which respondent's activities

will be overseen and supervised by another QME, who shall provide periodic reports to the IMC.

23. Monitored Practice

Within thirty (30) days of the effective date of this decision, Respondent shall submit to the IMC and receive its prior approval for a plan of practice in which Respondent's activities as a QME or AME will be monitored by another QME, who shall provide periodic reports to the IMC or its designee.

If the monitor resigns or is no longer available, Respondent shall, within five (5) days, provide the IMC or its designee the name, address and phone number of a new monitor, for the IMC's approval.

Respondent shall execute a written release authorizing the designated third party(s) to divulge any information that the IMC may request during interviews by the probation monitor on a periodic basis.

24. Psychiatric Evaluation

Within thirty (30) days of the effective date of this decision, and on a periodic basis thereafter as may be required by the IMC or its designee, Respondent shall undergo a psychiatric evaluation by a psychiatrist/psychologist appointed by the IMC. The appointed evaluator shall furnish a report to the IMC or its designee.

If Respondent is required by the IMC or its designee to undergo psychiatric treatment, Respondent shall within thirty (30) days of the requirement notice, submit to the IMC for its prior approval the name and qualifications of a psychotherapist of Respondent's choice. Upon approval of the treating psychotherapist, Respondent shall undergo and continue psychiatric treatment until further notice from the IMC. Respondent shall have the treating psychotherapist submit quarterly status reports to the IMC.

(Optional)

Respondent shall not perform any function as a Qualified Medical Evaluator or an Agreed Medical Evaluator until notified by the IMC of its determination that Respondent is mentally fit to resume such forensic practice.

25. Psychiatric Treatment

Within sixty (60) days of the effective date of this decision, Respondent shall submit to the IMC for its prior approval the name and qualifications of a psychotherapist of Respondent's choice. Upon approval, Respondent shall undergo and continue treatment until his or her treating psychotherapist (i.e. psychiatrist, psychologist, other licensed mental health practitioner) deems that no further psychiatric treatment is necessary. Respondent shall have the treating psychotherapist submit quarterly status reports to the IMC. The IMC may require Respondent to undergo psychiatric evaluations by an IMC–appointed psychiatrist/psychologist.

*(Note: This condition is for those cases where the evidence demonstrated that the respondent has had impairment [i.e. impairment by mental illness, alcohol abuse and drug self abuse] related to the violations but is not at present a danger to his/her patients.)*

26. Medical Evaluation

Within thirty (30) days of the effective date of this decision, and on a periodic basis thereafter as may be required by the IMC or its designee, Respondent shall undergo a medical evaluation by an IMC appointed physician who shall furnish a medical report to the IMC or its designee.

If Respondent is required by the IMC or its designee to undergo medical treatment, Respondent shall within thirty (30) days of the requirement notice, submit to the IMC for its prior approval the name and qualifications of a physician of Respondent's choice. Upon approval of the treating physician, Respondent shall undergo and continue medical treatment until further notice from the IMC. Respondent shall have the treating physician submit quarterly reports to the IMC.

(Optional)

Respondent shall not perform any functions as a Qualified Medical Evaluator or an Agreed Medical Evaluator until notified by the IMC of its determination that Respondent is medically fit to resume forensic practice safely.

*(Note: This condition is for those cases where the evidence demonstrates that medical illness or disability was a contributing cause of the violations.)*

27. Medical Treatment

Within sixty (60) days of the effective date of this decision, Respondent shall submit to the IMC for its prior approval the name and qualifications of a physician of Respondent's choice. Upon approval, Respondent shall undergo and continue treatment until the IMC deems that no further medical treatment is necessary. Respondent shall have the treating physician submit quarterly reports to a physician appointed by the IMC to evaluate Respondent. Such reports shall indicate whether Respondent is capable of practicing forensic medicine safely. The IMC may require Respondent to undergo periodic medical evaluations by an IMC appointed physician. The Respondent shall pay the costs of all required evaluations.

*(Note: This condition is for those cases where there is evidence that medical illness or disability was a contributing cause of the violations but the Respondent is not at present a danger to his/her patients.)*

28. Biological Fluid Testing

Respondent shall immediately submit to biological fluid testing, at Respondent's cost, upon the request of the IMC or its designee.

29. Diversion Program

Within thirty (30) days from the effective date of this decision, Respondent shall enroll and participate in a diversion program designated by the IMC or its designee, until the IMC determines that further treatment and rehabilitation is no longer necessary. Quitting the program without permission or being expelled for cause shall constitute a violation of probation by Respondent.

30. Drugs – Abstain from Use

Respondent shall abstain completely from the personal use or possession of controlled substances as defined in the California Uniform Controlled Business and Professions Code, or any drugs requiring a prescription. This prohibition does not apply to medications lawfully prescribed to respondent for a bona fide illness or condition by another practitioner.

31. Controlled Drugs – Maintain Record

Respondent shall maintain a record of all controlled substances prescribed, dispensed or administered by Respondent during probation, showing all the following: 1) the name and address of patient, 2) the date, 3) the character and quantity of controlled substances involved, and 4) the indications and diagnoses for which the controlled substances were furnished.

Respondent shall keep these records in a separate file or ledger, in chronological order, and shall make them available for inspection and copying by the IMC or its designees, upon request.

32. Alcohol – Abstain from Use

Respondent shall abstain completely from the use of alcoholic beverages.

33. Notation of Probationary QME Status

Upon the effective date of this decision, the IMC shall make a notation on each letter sent to an unrepresented injured worker, which lists Respondent's name on a panel of QMEs, indicating that Respondent is currently on probation as a QME. IMC also shall make a notation next to Respondent's name wherever it appears in each QME roster issued during the period in which Respondent is on probation on the date the roster is issued. Respondent shall answer truthfully any questions from injured workers or other parties about Respondent's probationary QME status.

34. Submission of Reports to the IMC

Respondent shall submit to the IMC copies of the next five medical/legal reports written by Respondent after the effective date of this decision, in the capacity of a Qualified Medical Evaluator. Respondent shall submit a copy of each such report to the IMC probation monitor within 10 working days of forwarding the report to any party in the case.

35. Use of Terminology Regarding Area of Practice or Specialty

Respondent shall ensure all statements regarding Respondent's professional training and area of practice, appearing on letterhead, advertis-

ing, business cards, web sites and other public communications, conform to the provisions of Business and Professions Code 651. Further, Respondent shall refrain from using terms, including (state specific terms or phrases used which resulted in discipline). Respondent further agrees to (add specific terms as applicable to case).

NOTE: Authority cited: Sections 133, 139 and 139.2, Labor Code. Reference: Section 139.2, Labor Code.

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
2. Change without regulatory effect amending section filed 10–29–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 44). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

## Article 7. Practice Parameters for the Treatment of Common Industrial Injuries

### § 70. Treatment Guideline for Low Back Problems.

The Industrial Medical Council recommends treatment of industrial injury to the low back, consistent with the "Treatment Guideline for Low Back Problems," as adopted by the Industrial Medical Council on April 17, 1997 as set forth below.

TREATMENT GUIDELINES FOR LOW BACK PROBLEMS

Introduction

Low back problems are common among workers. In the majority of injured workers with low back problems, recovery occurs within the first month of symptoms. Those who have not improved at the end of one month of treatment may need further diagnostic evaluation and consideration of other treatment options. Management of low back problems in injured workers includes consideration of environmental and personal factors which may be causing or aggravating the problem, as well as providing appropriate treatment that leads to a return to productive work.

Scope of the Guideline

This guideline deals with the assessment and treatment of common low back problems in working age people. Initial assessment to rule out uncommon low back problems is discussed, but definite diagnosis and treatment of uncommon disorders is beyond the scope of this guideline. This guideline does not deal with legal issues of causation or work–relatedness. Treatment guidelines are designed to assist providers by offering an analytical framework for the evaluation and treatment of the more common problems of injured workers. These guidelines are educational and descriptive of generally accepted practices for the assessment and treatment of low back problems. The guidelines are intended to assure appropriate and necessary care for injured workers diagnosed with these types of industrial conditions. Due to many factors which must be considered when providing quality care, health care providers shall not be expected to always provide care within the stated guidelines. Treatment authorization, or payment for treatment, shall not be denied based solely on a health care provider's failure to adhere to the IMC guideline. These guidelines are not intended to be the basis for the imposition of civil liability or professional sanctions. They are not intended to either replace a treating provider's clinical judgment or to establish a protocol for all patients with a particular condition. It is understood that some patients will not fit the clinical conditions contemplated by a guideline. This includes those patients demonstrating "Red Flag" concerns described in the guideline.

Symptom duration is classified as acute (< one month), subacute (one to three months), and chronic (> three months). If an injured worker experiences more than one recurrence of low back pain in a year, except in cases of a new injury, it should *not* be classified and treated as an acute back problem. In this case, it is considered a chronic recurrent low back problem, and secondary assessment and treatment methods should be utilized along with an emphasis on active therapy and prevention strategies. Chronic low back problems are outside the scope of this guideline.

For the purpose of this document, a provider is defined as any health care provider acting within the scope of his/her practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician.

All health care providers acting within the scope of their practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician, shall be allowed to bill and be reimbursed in accordance with the Official Medical Fee Schedule.

A provider may vary from these guidelines, if in his or her judgment, variance is warranted to meet the health care needs of the injured worker and that variance remains within the standards of practice generally accepted by the health care community, and the provider documents the need for the variance in the evaluation report or the medical treatment record in the manner that is generally accepted by the health care community.

Not every medical situation can be addressed in these regulations and medical standards change constantly. The documentation required of the provider is necessary to monitor and explain the use of variances.

In all cases, the provider shall document no later than six months from the date of the injury, whether further treatment is warranted and whether the injured worker has any significant subjective and objective findings of the condition still not having plateaued.

1.0 Initial Assessment of Low Back Problems

1.1 Purpose

The purpose of the initial assessment is to establish a working diagnosis and assign the injured worker into one of five initial clinical categories of low back problems:

1) Conditions involving the bony spinovertebral axis such as cancer, infection or fracture;

2) Intraspinal pathology involving the neuraxis such as cauda equina syndrome or radiculopathy;

3) Arthritic or inflammatory conditions;

4) Mechanical conditions; or

5) Referred low back pain due to viscerogenic and/or other causes.

In addition, the initial assessment looks for (and documents for the chart) other factors which might have an impact upon an injured worker's symptoms and/or response to treatment (e.g., work, personal, psychosocial, and economic factors).

1.2 Appropriate Initial Assessment Methods

1.2.1 History and physical

The history and physical examination are the bases upon which any assessment and treatment decisions are to be made. Decisions about diagnostic imaging, laboratory testing, and specialist referral should be guided by the clinical features of the history and exam. Only a small minority of injured workers will require further diagnostic testing after the initial history and physical.

On the history, document the characteristics of pain (type, location, duration, severity, radiation), associated symptoms, precipitating factors, positions and activities that aggravate or relieve the symptoms, as well as its impact on function at home and work. Information concerning previous back injuries, diagnostic and treatment procedures, and response to previous therapies (including home treatments and use of appliances) should be obtained. The use of a pain drawing and/or pain scale (e.g., Visual Analog Scale) may assist in the evaluation of the location, characteristics, and severity of pain, and may be utilized in the assessment of treatment response. (One example of a pain drawing and pain scale appears in Appendix 7.1.)

The relationship of the symptoms to performance of specific activities should be sought (e.g., work tasks and ergonomic factors, sitting, walking, driving, coughing, hobbies, recreational activities, etc.). In addition, ask key questions pertinent to serious spinal, intraspinal or viscerogenic conditions [see below]). The initial history should also document relevant past medical and surgical history, occupational history, social (including hobbies, recreational activities, and the use of tobacco, alcohol

and other drugs), and any relevant psychosocial issues such as financial, family, or workplace difficulties.

A thorough physical examination that is based upon the appropriate history and presentation of the patient is expected. The examination includes, but is not limited to, general appearance, visual inspection and palpation, manual testing of range of motion, vascular and neurologic inspection. A focused neurologic exam that includes reflexes, strength and sensation testing in the lower extremities should be performed. Bilateral supine and seated straight leg raising is also recommended during the initial evaluation. Examination of the hip joint can help exclude referred back or leg pain from an abnormal joint. Although most patients have localized, non radiating pain and/or limited range of motion, these findings are non specific for most back problems. Limited spinal motion may be useful for planning and monitoring response to treatment and for developing appropriate work restrictions.

1.2.1.1 Conditions involving the bony spinovertebral axis such as cancer, infection or fracture

Certain key findings on the medical history and physical examination may raise suspicion of a possible serious underlying condition of the spine which requires immediate diagnosis and prompt treatment, including appropriate referral for specialty consultation. The following serious underlying conditions of the spine are suggested by, but not limited to, the "Red Flags" listed below:

For cancer or infection: age greater than 50 years, history of prior cancer, unexplained weight loss, back pain not improved with rest, fever, immunosuppression, intravenous drug use, history of urinary infection and/or incapacitating pain.

For spinal fracture: history of significant trauma (e.g., motor vehicle accident or fall from height), age greater than 60, prolonged use of corticosteroids, alcohol or substance abuse.

Injured workers with clinical findings that suggest underlying disease may require further studies, such as laboratory tests, x–rays, or specialized tests to evaluate for these conditions. The provider should clearly document the need for any additional tests for other serious pathologies during the initial assessment. Other pathologies should be ruled out.

1.2.1.2 Referred low back pain due to viscerogenic and/or other causes

Referred pain from visceral diseases or other musculoskeletal disorders unrelated to the lumbar spine may be distinguished by a careful history and physical examination. A history of urinary tract, abdominal or pelvic symptoms suggests visceral disease. Abdominal and pelvic disorders which may cause low back pain include abdominal aortic aneurysm, pyelonephritis, nephrolithiasis, gynecological problems, prostatitis, pancreatitis, and other gastrointestinal conditions. Examination of the hip and sacroiliac joints may reveal findings consistent with a localized joint or muscle problem.

1.2.1.3 Arthritic or inflammatory conditions

Inflammatory arthritides of the spine that can cause back symptoms include ankylosing spondylitis and other rare spondyloarthropathies. A suspicion of these and other related conditions should suggest a referral to the appropriate specialist for further evaluation. Work–up of these conditions is not discussed in this guideline, but should be guided by the clinical findings and suspicion of a systemic illness.

1.2.1.4 Distinguish between mechanical conditions and radiculopathy or other neurological conditions

For the purpose of determining the appropriate management of low back problems and estimating prognosis, it is helpful to classify injured workers into diagnostic categories, as well as to consider symptom duration. Most injured workers can be separated into diagnostic categories based on the location and characteristics of their symptoms and the clinical findings.

[The next page is 2.24(z)(57).]

1.2.1.4.1 The symptoms of mechanical low back conditions are predominantly low back pain, with possible referral of pain to the buttock and/or leg above the knee in a non-dermatomal pattern.

1.2.1.4.2 Radiculopathy or other neurological conditions result from spinal or intraspinal pathology involving one or more nerve roots. Presenting symptoms are related to specific nerve root(s) and type of pathology and may include pain, alteration in sensation, loss of strength, and altered reflexes in various combinations.

1.2.1.4.3 Cauda equina syndrome results from injury to multiple lumbosacral nerve roots. It may present with bowel and/or bladder dysfunction, saddle hypesthesia or anesthesia. This serious condition is a red flag requiring immediate referral to an appropriate specialist.

1.2.1.5 Documentation of other relevant factors

A detailed work history should be obtained, including a description of current job duties, and the relationship of symptoms to performance of job tasks.

Psychological work factors that are known to increase the reporting of a back injury and lead to prolonged symptoms and disability include job monotony and job dissatisfaction. If psychological distress is suspected from the history, pain drawing, and/or the physical examination such as the presence of several "non-organic" physical signs (non anatomic or superficial tenderness, inconsistent response between supine vs. seated straight leg raising, pain on simulated axial loading or spine rotation, over reaction, and regional sensory and motor disturbances), the injured worker may be at risk for a delayed recovery or poor response to any surgical procedure.

The medical and social history may help the provider evaluate for other risks of delayed recovery and plan therapy accordingly. A history of previous back injuries or surgery, failed previous treatments, prolonged or contentious litigation or disability claims, family or financial problems, or secondary gain may affect treatment response and prolong disability. Chronic pain, depression, and alcohol or substance abuse may prolong disability and influence the choices for therapy. Recreational and other non work activities which might contribute to low back problems must also be considered in the evaluation and management of low back problems.

1.2.2 Laboratory studies

Laboratory tests should not be ordered *routinely* in the initial assessment unless an underlying illness is suspected. If the history, age, or examination suggests cancer, infection, inflammatory arthritis (such as ankylosing spondylitis), metabolic-endocrine disorders or visceral disease, then appropriate laboratory tests may be indicated. The physician must provide a clear rationale of the indications for the tests ordered.

1.2.3 Diagnostic imaging

Plain X-Rays

The most commonly used x-ray views of the lumbar spine (the standard anteroposterior and lateral views) permit assessment of lumbar alignment, comparison of vertebral body and disc space size, assessment of bone density and architecture, and gross evaluation of soft tissue structures. Oblique views of the lumbar spine are used in the detection of unilateral or bilateral spondylolysis. Other special views include sacroiliac views to evaluate possible ankylosing spondylitis. The diagnostic objective of x-rays is to reveal structural abnormalities associated with back symptoms.

Plain x-rays are not recommended for routine evaluation of patients with acute low back problems within the first month of symptoms unless a red flag is noted on the clinical examination (such as specified below).

Plain x-rays of the lumbar spine are recommended for ruling out fractures in patients with acute low back problems when any of the following red flags are present: recent significant trauma (any age), recent mild trauma (patient over age 50), history of prolonged steroid use, osteoporosis, patient over age 60.

Plain x-rays in combination with clinically appropriate laboratory studies may be useful for ruling out tumor or infection in patients with acute low back problems when any of the following red flags are present: prior cancer or recent infection, fever over 100 degrees F, IV drug abuse, prolonged steroid use, low back pain worse with rest, unexplained weight loss.

In the presence of red flags, especially for tumor or infection, the use of other imaging studies such as bone scan, CT, or MRI may be clinically indicated even if plain x-rays are negative.

The routine use of oblique views on plain lumbar x-rays is not recommended in light of the increased radiation exposure.

1.2.4 Ergonomic evaluation

Clinical indications:

Work history, job analysis/description, or workplace inspection may be useful to identify physical work factors contributing to the development or exacerbation of low back problems, which prevent return to usual work. A worksite evaluation with the affected injured worker should be performed by a professional trained in these types of evaluations.

1.3 Inappropriate Initial Assessment Methods

All of the following assessment methods have been determined inappropriate during the initial phase of assessment. (All are Appropriateness level 1.)

Routine use of:

1.3.1 Laboratory studies

1.3.2 Lumbar x-rays

1.3.3 CT, MRI, myelography, CT-myelography, and bone scan

1.3.4 Discography

1.3.5 Electromyography (EMG)

1.3.6 Computerized strength and range of motion testing

Computerized testing of strength and range of motion is not recommended in the initial assessment of acute low back problems.

2.0 Initial Treatment of Low Back Problems

2.1 Purpose

The purpose of the initial treatment of low back problems is to relieve pain and suffering and to restore functional capacity. The goal is to allow the injured worker to resume necessary activities, including return to modified or full work according to the favorable natural history for low back problems. Injured workers with radiculopathy or other neurological conditions may require more aggressive management and closer monitoring for further neurologic deterioration that may require additional diagnostic testing with possible surgery.

Treatment may include: 1) education about back problems and their prevention; 2) activity and environmental modifications; 3) exercise; 4) medication; and/or 5) physical treatments as delineated later in this section. This guideline does not address treatment for spinal conditions of cancer, infection, fracture, cauda equina syndrome, arthritic or inflammatory conditions, viscerogenic back symptoms or chronic low back problems.

2.2 Appropriate Initial Treatment Methods

2.2.1 Education

2.2.1.1 General information Appropriateness level 4

Education is the most effective method of reducing the injured worker's concerns about persistent pain problems. Accurate information concerning connective soft tissue injury and repair, including expectations for both rapid recovery and recurrences, should be provided to allay the injured worker's fear. Patients should be taught principles related to pertinent anatomy, proper back mechanics, postural information, and safe work methods. Safe and reasonable modifications of work, home, and recreational activities should be given. Instructions for self-management of symptoms and lifestyle modifications should also be provided (e.g., use of cold or heat therapy at home, medications, exercises, rest periods). Reassurance about the benign nature of most low back problems and its compatibility with various activities should be given.

A collaborative partnership among the physician, employer and injured worker is an essential component of any plan to return the injured employee to work.

Specific functional goals, including home and work activities, time frame for expected improvements, and return to work should be given by the provider to the injured worker. Effectiveness and risks of commonly available diagnostic and treatment measures should be considered if

symptoms persist and should be discussed with the patient. Education should be provided by the treating provider and may be supplemented by a physical or occupational therapist as part of a referral for flexibility and strengthening exercise training (see below).

2.2.1.2 Back education program Appropriateness level 3

A back educational program that promotes exercise as a rehabilitation and prevention method is recommended for an injured worker with low back problems.

2.2.2 Activity and environmental modifications

2.2.2.1 Work restrictions Appropriateness level 4

Modifications of activities including specific work restrictions that are based on the injured worker's job requirements and clinical status, are acceptable if functional limitations do not allow continuation of regular work duties. Complete work cessation should be avoided, if possible, through the use of modified duty. Written work restrictions should be as specific as possible, and it may be necessary to contact the employer to discuss alternative work within the prescribed restrictions. Injured workers with work restrictions should be re-evaluated within two weeks for determination of work status, response to treatment, and for making appropriate decisions concerning progression to full activities.

2.2.2.2 Bed rest Appropriateness level 4

The majority of injured workers with low back pain will not require bed rest. Short-term continuous bed rest may be appropriate for up to two days. Bed rest for more than four days may lead to debilitation and is not recommended for treating low back problems. A gradual return to normal activities is more effective than prolonged bed rest for treating low back problems.

2.2.2.3 Environmental/job modification Appropriateness level 3

Environmental modifications including engineering (e.g., work station adjustment) and administrative controls (e.g., job rotation) to limit or eliminate work activities that might lead to or aggravate back problems should be considered early on for symptomatic workers who have work-related risk factors for low back problems.

2.2.3 Exercise Appropriateness level 4

2.2.3.1 Rehabilitative exercise recommendations

Up to 12 visits for rehabilitative exercise may be implemented in the first month. A step-wise program using exercise goals that are gradually increased over time is appropriate in uncomplicated cases of most low back problems. Aerobic (walking, biking, swimming, or similar activities) and stretching exercises can begin early on to increase mobility. Progressive strengthening exercises for abdominal and back muscles may promote recovery and prevent prolonged disability due to deconditioning. Adequate instruction in exercises and positioning may require supervision by a provider. An active progressive exercise program designed to achieve or maintain an increase in range of motion and strength should be promoted as the best method of limiting recurrences of low back problems. The exercise program should be included in the treatment plan and/or referenced in the progress reports. The rehabilitative exercise visits shall be limited to a maximum of three times per week in the initial phase, with emphasis placed on home exercise.

2.2.3.2 Referral for physical treatment Appropriateness level 3

Referral for physical treatment may be appropriate within the first 30 days.

2.2.4 Medications

2.2.4.1 Acetaminophen Appropriateness level 4

Acetaminophen, a non-narcotic analgesic, has commonly been regarded as having an analgesic effect, but little or no known anti-inflammatory mechanism. The therapeutic objective for its use in acute low back problems is pain relief. Acetaminophen is reasonably safe and is acceptable for treating patients with acute low back problems.

2.2.4.2 Non-steroidal anti-inflammatory drugs (NSAIDs) Appropriateness level 4

NSAIDs are a class of medications, including aspirin, ibuprofen, indomethacin, and other medications. They have anti-inflammatory and analgesic properties as well as being prostaglandin inhibitors. The therapeutic objective of NSAIDs in treating acute low back problems is to decrease pain, presumably by reducing inflammation and promoting healing. NSAIDs, including aspirin, are acceptable for treating patients with acute low back problems but have a number of potential side effects. The most frequent complication is gastrointestinal irritation. The decision to use these medications can be guided by comorbidity, side effects, cost, and patient and provider preference.

2.2.4.3 Muscle relaxants Appropriateness level 3

Muscle relaxants are an option in the treatment of patients with acute low back problems. While probably more effective than a placebo, muscle relaxants have *not* been shown to be more effective than NSAIDs. No additional benefit is gained by using muscle relaxant in combination with NSAIDs over using NSAIDs alone. Muscle relaxants have potential side effects, including drowsiness in up to 30 percent of patients. When considering the optional use of a muscle relaxant, the clinician should balance the potential for drowsiness against a patient's intolerance of other agents.

2.2.4.4. Oral corticosteroids Appropriateness level 2

Oral steroids are used by some clinicians in the treatment of patients with acute low back problems. The therapeutic objective is to reduce inflammation in an attempt to promote healing and reduce pain. However, oral steroids are not recommended for the treatment of acute low back pain without radiculopathy.

2.2.4.5 Opioid Analgesics Appropriateness level 3

Oral opioid analgesics commonly given to patients with acute low back problems include morphine derivatives (opioids) and synthetic opioids. The therapeutic objective in treating low back problems is temporary pain relief. When used only for a time-limited course, opioid analgesics are an option in the management of patients with acute low back problems. The decision to use opioids should be guided by consideration of their potential complications relative to other options. Routine prescription of opioids is not recommended and when prescribed for severe pain, should be limited in duration and quantity.

2.2.5 Physical treatments Appropriateness level 4

2.2.5.1 Manual medicine, manipulative techniques, manual therapy/mobilization include treatments performed by a physician or another appropriately licensed health care provider as defined by their scope of practice.

2.2.5.2 Other physical modalities Appropriateness level 3

Active treatments such as manual medicine/therapy may be combined with passive modalities, including but not limited to iontophoresis, phonophoresis, electrical stimulation, ultrasound, diathermy, traction, and other physical agents, during the first four weeks of treatment. These passive modalities should not be used as the sole form of treatment. They shall be combined with an active treatment program that emphasizes progressive exercises.

2.2.5.3 Frequency of physical treatment methods Appropriateness level 3

The frequency of the physical treatments listed above within the initial four weeks of treatment may be up to 12 visits in the first month.

2.2.5.4 Transcutaneous Electrical Nerve Stimulation (TENS) Appropriateness level 2

TENS may be useful for management of low back problems. If no functional and symptomatic benefit has been demonstrated after two weeks, treatment should be discontinued.

2.2.5.5 Acupuncture Appropriateness level 2

Acupuncture may be useful to relieve acute low back pain. The frequency of acupuncture treatments within the initial four weeks of treatment may be up to three times per week for four weeks, or up to twelve office visits. During this initial treatment, if there is not substantial improvement, in a maximum of 12 treatments, the patient is to be re-evaluated by a more extensive physical examination, laboratory testing, imaging or referral to another physician.

2.2.5.6 Epidural Steroid Injections Appropriateness level 2

An epidural steroid injection may be helpful for reducing tissue inflammation and short-term pain relief in a patient with an acute radicular low back problem who is unable to participate in an active treatment pro-

gram because of severe leg pain and/or neuromotor deficit. If successful, a progressive active treatment program should be implemented with the goal of avoiding prolonged disability and possible surgical intervention.

2.2.5.7 Lumbar supports (e.g., corsets, support belts, braces) Appropriateness level 2

Immobilization with lumbar supports may provide symptomatic relief of pain and movement reduction in cases of severe acute low back problems. The injured worker should be advised of the potential harm from using a lumbar support for a greater period of time than that prescribed.

2.2.6 Hospitalization for non-surgical treatment Appropriateness level 2

Hospitalization is rarely necessary for the non-surgical management of severe low back pain.

2.2.7 Myofascial and trigger point injections Appropriateness level 2

Up to three trials of injection therapy within the first 30 days may be helpful for short term pain relief in patients with mechanical back conditions.

Trigger point and myofascial injections are not for use as the exclusive method of treatment.

2.3 Case Management Appropriateness level 4

An adequate re-evaluation of the problem, with determination of treatment effectiveness and patient compliance, should be performed at appropriate intervals during the first 30 days of treatment.

2.4. Inappropriate Initial Treatments

The following initial treatment methods are inappropriate in the initial treatment phase: (All are Appropriateness level 1.)

2.4.1 Surgical treatments

Except for those further conditions cited earlier as 'red flags' relevant to intraspinal pathology such as cauda equina syndrome or radiculopathy, surgery for acute radicular pain within the first 30 days is usually not indicated. Surgical treatment is rarely, if ever, indicated for low back pain without radicular symptoms.

2.4.2 Exclusive use of physical modalities

2.4.3 Biofeedback

2.4.4 Implantable spinal techniques such as infusion pumps or stimulators

2.4.5 Back school

A formal back school is usually not appropriate for an injured worker with acute low back problems.

2.4.6 Facet injections

3.0 Secondary Assessment of Low Back Problems

3.1 Purpose

The purpose of secondary assessment is to determine the reason for delayed recovery in a patient who has *not* symptomatically or functionally improved after one month of appropriate treatment (i.e., progressed to a subacute low back problem). The first step in secondary assessment is a re-evaluation with assignment of the patient into one of the five clinical categories:

1) Conditions involving the bony spinovertebral axis such as cancer, infection or fracture;

2) Intraspinal pathology involving the neuraxis such as cauda equina syndrome or radiculopathy;

3) Arthritic or inflammatory conditions;

4) Mechanical conditions; or

5) Referred low back pain due to viscerogenic and/or other causes.

Depending on the findings, diagnostic evaluation during the subacute phase (one to three months) may include diagnostic imaging, laboratory tests, bone scan, electrophysiologic tests, functional capacity testing, ergonomic evaluation and/or psychological testing. The clinical indications for each of these diagnostic methods is given below.

Referral for consultation is appropriate for problems of delayed recovery or questions about diagnosis. Referral may be made to appropriate physician specialists.

3.2 Appropriate Secondary Assessment Methods

3.2.1 Plain film x-rays (AP and lateral views)

Clinical indications:

Persistent low back problems and/or suspicion of systemic disease, cancer, infection, inflammatory arthritis, fracture or spondylolisthesis.

The routine use of oblique or special views on plain lumbar x-rays is not recommended in light of the increased radiation exposure.

3.2.2 Specialized imaging tests (CT, MRI)

Clinical indications:

3.2.2.1 Findings that suggest lumbar nerve root compromise (radiculopathy from herniated disc and/or spinal stenosis) or a severe or progressive neurologic deficit has occurred. These studies are most suitable when surgery or epidural steroid injections are being considered and/or when the injured worker has failed an appropriate course of treatment.

3.2.2.2 Findings that suggest tumor or infection.

3.2.2.3 Findings that suggest a fracture and lumbar x-rays are inconclusive.

3.2.3 Other specialized imaging tests (myelography and CT- myelography)

Clinical indications:

When imaging tests (CT, MRI) are inconclusive, contradictory or contraindicated, other specialized imaging tests, such as myelography and CT-myelography, are warranted. These studies are invasive and should only be ordered in special situations.

3.2.4 Bone scan

Clinical indications:

Findings on history, exam, lab or other imaging studies are suggestive for but not limited to tumor, infection, fracture and arthritis. Bone scans demonstrate abnormal metabolic activity and are not diagnostic for these conditions.

3.2.5 Laboratory testing

Clinical indications: As deemed appropriate by the reassessment.

3.2.6 Needle electromyography/nerve conduction study (EMG/NCS)

Clinical indications:

Diagnosis of lumbosacral radiculopathy can usually be made based upon the neurologic examination. EMG/NCS may occasionally be helpful for evaluating suspected nerve root dysfunction, peripheral neuropathy, or peripheral nerve entrapment when the findings on the exam are equivocal or confusing. They may be useful preoperatively to confirm a radiculopathy and may be of some assistance in determining the location and severity of nerve root injury.

3.2.7 Functional capacity testing

Clinical indications:

The injured worker's perception of his or her capabilities might be inaccurate, or there is an issue about ability to do a specific job. Comprehensive and objective measurements and tests that are specific to the patient's condition and the functional requirements for return to work may be performed. Functional capacity testing is performed to determine the injured worker's physical capacities. This in correlation with the physical findings may be used to determine the injured worker's ability to return to work.

3.2.8 Ergonomic evaluation

Clinical indications:

Work history, job analysis/description, or workplace inspection may be useful to identify physical work factors contributing to the development or exacerbation of low back problems that can prevent return to usual work. A worksite evaluation with the affected injured worker should be performed by a professional trained in these types of evaluations.

3.2.9 Psychiatric evaluation and/or appropriate psychological testing

Clinical indications:

Findings on history and exam that suggest that psychosocial factors (e.g. stress, job dissatisfaction, depression, substance abuse, symptom magnification) may be contributing to delayed recovery, noncompliance or lack of response to appropriate treatment in subacute and chronic low back problems.

If an injured worker is at risk for delayed recovery, a psychiatric evaluation and/or appropriate psychological testing may be helpful for deter-

mining if significant psychological or personality factors are contributing to the disability.

The presence of several "non organic" physical signs may also identify patients who need further psychological testing and evaluation. These patients may need specific behavioral or psychiatric treatment.

Psychological and personality evaluations may be utilized preoperatively in a patient who is being considered for surgical treatment to assist in selection and planning whether behavioral intervention is necessary.

3.2.10 Somatosensory evoked potentials (SEP)

Clinical indications:

SEP may be helpful in evaluation of neurological involvement in conditions such as spinal stenosis or myelopathy.

3.3 Inappropriate Secondary Assessment Methods (All Appropriateness level 1)

The following methods have been determined inappropriate for secondary assessment:

3.3.1 Discography

3.3.2 Surface EMG

3.3.3 Diagnostic blocks and injections including facet joint injections

3.3.4 Computerized strength and range of motion testing

4.0 Secondary Treatment of Low Back Problems

4.1 Purpose

The purpose of secondary treatment is to provide appropriate symptomatic relief for the injured worker with low back problems while continuing to intensify efforts in active treatments, such as exercise. The aim of secondary treatment is to prevent progressive deconditioning and permanent disability, while promoting return to full work for those who are either off work or on modified duty. Treatment is based on the findings of the diagnostic re–evaluation at four weeks. This phase of treatment may be extended up to two months beyond the initial phase of treatment.

4.2 Appropriate Secondary Treatment Methods

4.2.1 Rehabilitative exercise recommendations Appropriateness level 4

A step–wise program using exercise goals that are gradually increased over time is appropriate in uncomplicated cases of most low back problems. Aerobic (walking, biking, swimming, or similar activities) and stretching exercises can begin early on to increase mobility. Progressive strengthening exercises for abdominal and back muscles may promote recovery and prevent prolonged disability due to deconditioning. Adequate instruction in exercises and positioning may require supervision by a provider. An active progressive exercise program designed to achieve or maintain an increase in range of motion and strength should be promoted as the best method of limiting recurrences of low back problems. The exercise program is recommended to be included in the treatment plan and/or referenced in the progress reports. Supervised exercise sessions should be limited to a maximum of four weeks,without re–establishing medical necessity.

4.2.2. Medication

4.2.2.1 Acetaminophen Appropriateness level 4

4.2.2.2 NSAID's Appropriateness level 4

4.2.2.3 Muscle relaxants Appropriateness level 2

4.2.2.4 Oral Corticosteroids Appropriateness level 2

4.2.2.5 Opioid Analgesics Appropriateness level 3

Opioids have significant adverse effects such as decreased reaction time, clouded judgment, drowsiness, habituation and potential for physical dependence.

4.2.2.6 Antidepressants Appropriateness level 3

4.2.3 Physical Treatment Appropriateness level 3

Treatment following the initial trial of four weeks generally should *not* exceed two times per week. The continuation of treatments is based on reported improvement in subjective complaints, objective factors/clinical findings, and functional capacity.

Management may also include active care, education and therapeutic/rehabilitative exercise.

Exacerbations may warrant a short course (up to two weeks) treatment of up to three times a week.

4.2.3.1 Traction – static/mechanical for up to two weeks in combination with other physical medicine Appropriateness level 2

4.2.4 Work conditioning Appropriateness level 3

Work conditioning programs which include general conditioning exercises and graduated performance of simulated job tasks may be useful in preparing the injured worker to return to a specific job or in determining work restrictions. The duration of the program should be guided by the documentation of objective functional improvement. The duration of the program may be up to a maximum of four weeks without re–establishing medical necessity.

4.2.5 Transcutaneous Electrical Nerve Stimulation (TENS) Appropriateness level 2

TENS may be useful for management of low back problems. If no functional and symptomatic benefit has been demonstrated after two weeks, this treatment should be discontinued.

4.2.6 Epidural steroid injections Appropriateness level 2

Clinical indications:

For a patient with a subacute radicular low back problem who is unable to progress in an active treatment program because of severe leg symptoms and/or neuromotor deficit, an epidural steroid injection may be helpful for symptomatic relief. If successful, a progressive active treatment program should be continued with the goal of avoiding prolonged disability and possible surgical intervention. In general, more than three injections are not recommended. Epidural steroid injections are inappropriate for non–radicular back problems. They should not be used as the sole form of treatment for radicular pain.

4.2.7 Biofeedback Appropriateness level 3

Used occasionally to train the patient to control the symptoms by self regulation of somatic activity developed through instrumentation–enhanced proprioception. Particularly indicated if it reduces the medication usage and/or increases function. If there is no functional and symptomatic benefit after a three week trial, treatment should be discontinued.

4.2.8 Surgical treatment methods

Clinical indications:

Surgical treatment may be appropriate for injured workers with radicular or other neurological conditions in the following circumstances: 1) Their clinical exam demonstrates persistent symptoms and exam findings that prevent resumption of normal activities, and are unresponsive to an appropriate course of active non–surgical treatment; and 2) Diagnostic test findings objectively verify a surgically remediable condition that correlates with the clinical exam; and 3) There is no significant physical and/or psychological co–morbidity that is likely to lead to a poor surgical outcome for the injured worker.

Surgical treatment for mechanical low back problems is rarely indicated.

4.2.8.1 Standard laminectomy with discectomy Appropriateness level 3

Standard laminectomy with discectomy is recommended using the clinical indications listed above. Includes decompression procedures such as standard laminectomy and/or microdiscectomy or variants thereof.

4.2.8.2 Spinal fusion Appropriateness level 2

Spinal fusion for low back problems such as herniated or painful discs is not recommended unless a specific anatomic site of lumbar instability has been identified. Potential sources of instability include degenerative spondylolisthesis, unstable fracture, and surgically induced instability.

4.2.9 Injection therapies

4.2.9.1 Trigger point injections Appropriateness level 2

Trigger point and myofascial injections are not for use as the exclusive treatment modality. When used, they should be limited to three trials of injection therapy.

4.2.9.2 Sacroiliac joint injections Appropriateness level 2

Sacroiliac joint injections should not be used as a sole treatment method. These should be limited to a maximum of three (3).

4.2.10 Acupuncture Appropriateness level 2

Acupuncture treatment is a physical treatment which may be useful following initial treatment to manage pain and to relieve the effects of injury and disease. After a maximum of 12 treatments, the patient is to be re-evaluated for subjective and objective evidence of improvement. If significant subjective and objective improvement is not demonstrated, treatment is to be discontinued.

4.3 Inappropriate Secondary Treatments

The following treatments have been determined as inappropriate for secondary treatment: (All are Appropriateness level 1.)

4.3.1 Ligamentous injections (sclerotherapy/prolotherapy)

4.3.2 Laser discectomy

4.3.3 Bed rest

4.3.4 Chemonucleolysis

4.3.5 Percutaneous discectomy

5.0 Prophylactic Treatment

5.1 Purpose

Injured workers whose low back problems have improved may benefit from the following measures to help maximize functioning for individuals with persistent mild low back symptoms and to prevent or reduce the impact of recurrent episodes. Appropriate back care strategies should be incorporated into all phases of the assessment and treatment process.

5.2 Appropriate Back Care Appropriateness level 4

5.2.1 Exercise

5.2.2 Back Education and Training

5.2.3 Workplace Modifications

5.2.4 Personal Risk Factor Reduction

6.0 Primary References Submitted and Reviewed in Developing the Treatment Guideline for Low Back Problems

The complete list of 216 references considered and reviewed in developing this guideline are available upon request from the Executive Medical Director, Industrial Medical Council, P.O. Box 8888, San Francisco, CA 94128-8888, Telephone No. 1-800-794-6900.

7.0 APPENDICES

Appendix 7.1 Visual Analog Scale and Pain Drawing (attached)

Appendix 7.2 Appropriateness Levels (attached)

Four levels of appropriateness are noted for these sections.

These are based upon the extent of consensus documented and/or degree of evidence for the treatment.

Appendix 7.3

The list of physicians and providers who assisted the Industrial Medical Council by serving on the General Consensus Panels and the Evidence Panel is available upon request from the Executive Medical Director, Industrial Medical Council, P.O. Box 8888, San Francisco, CA 94128- 8888, Telephone No. 1-800-794-6900.

Appendix 7.1 Pain Scale / Pain Drawing Example / Visual Analog Scale

*Attachment B: Pain Assessment Instruments*

B1. Visual analog scale

Mark below on the scale from 0 to 100 your level of pain discomfort with 0 being None and 100 being unbearable.

Visual Analog Scale (VAS)

None Unbearable

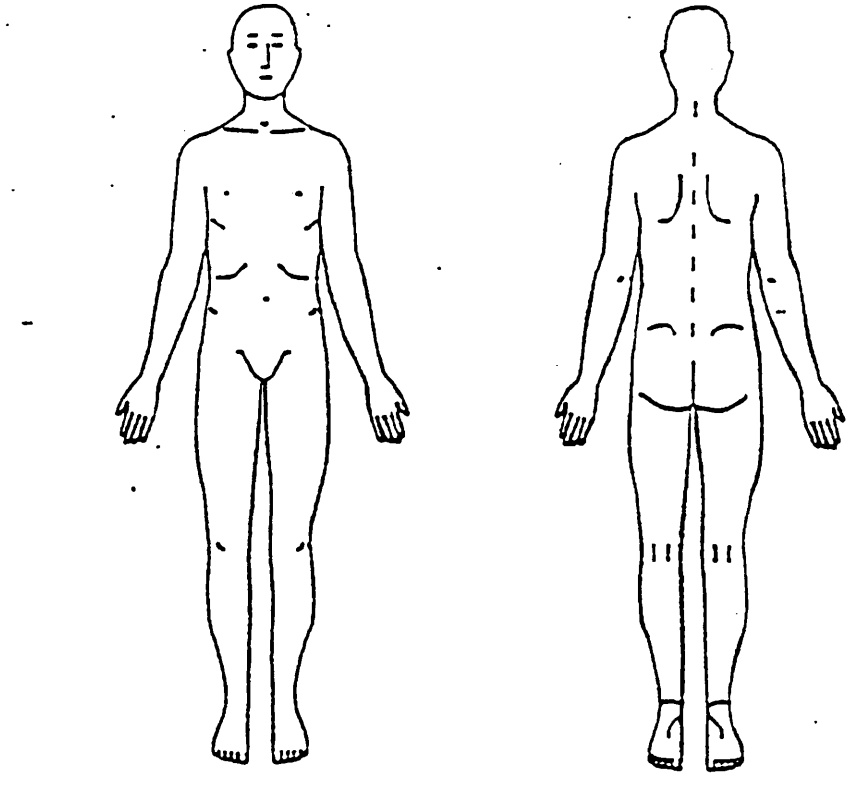
0 100

*Acute Low Back Problems in Adults*

B2. Pain drawing

Mark the areas on your body where you feel the described sensations. Use the appropriate symbol. Mark areas of radiation. Include all affected areas.

| | | | |
|---|---|---|---|
| Numbness | — | INC Sensitivity | 0000 |
| Constant | XXX | Sharp Twinge | //// |
| Throbbing Ache | XXX | | |



Appendix 7.2 Appropriateness Levels

| | Level 4 | Level 3 | Level 2 | Level 1 |
|---|---|---|---|---|
| Good Research Based Evidence | Yes | No | No | No |
| Clinical Evidence | Yes | Yes | Some | No |
| Consensus Of The Health Care Community | Yes | Yes | Partial | No |
| Clinical Utility Of Appropriateness Level For Common Low Back Problems | Appropriate and recommended | Acceptable or appropriate in most cases | Appropriate in uncommon individual cases. Document the case-specific clinical factors or circumstances which make this procedure reasonable and necessary for this injured worker. | Inappropriate |

Appendix 7.3

The list of physicians and providers who assisted the Industrial Medical Council by serving on the General Consensus panels and the Evidence Panel is available upon request from the

EXECUTIVE MEDICAL DIRECTOR
INDUSTRIAL MEDICAL COUNCIL
P.O. BOX 8888
SAN FRANCISCO, CA 94128- 8888
TELEPHONE NO. 1-800-794-6900.

NOTE: Authority cited: Section 139(e)(8), Labor Code. Reference: Section 139(e)(8) Labor Code.

HISTORY

1. Editorial correction changing placement of article 7 heading (Register 97, No. 23).
2. New section filed 6-3-97; operative 7-3-97 (Register 97, No. 23).
3. Amendment filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).
4. Change without regulatory effect amending section filed 7-12-2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

## § 71. Treatment Guideline for Industrial Neck Injuries.

The method of treating industrial injury to the neck shall be as set forth below in the "Treatment Guideline for Industrial Neck Injuries" as adopted by the Industrial Medical Council on May 15, 1997.

TREATMENT GUIDELINE FOR
INDUSTRIAL NECK INJURY

Introduction

Neck injuries are common among workers. In the majority of injured workers with neck injuries recovery occurs within the first month of symptoms. Those who are not better at one month may need further diagnostic evaluation and consideration of other treatment options. The overall goal of the management of neck injuries in workers is to identify and correct both environmental and personal factors that may be causing or aggravating the injury, while providing appropriate management of disability so that it leads to a return to productive work.

Scope of the Guideline

This guideline deals with the assessment and treatment of common industrial neck injuries in working age adults. This guideline addresses injuries affecting the neuromusculoskeletal structures of the neck and associated region. Initial assessment to rule out serious neck injuries is discussed, but definite diagnosis and treatment of serious disorders is beyond the scope of this guideline. This guideline does not deal with issues of legal causation or work-relatedness. Treatment guidelines are designed to assist providers by providing an analytical framework for the evaluation and treatment of the more common problems of injured workers. These guidelines are educational and descriptive of generally accepted parameters for the assessment and treatment of neck injuries. The guidelines are intended to assure appropriate and necessary care for injured workers diagnosed with these types of industrial conditions. Due to the many factors which must be considered when providing quality care, health providers shall not be expected to always provide care within the stated guidelines. Treatment authorization, or payment for treatment, shall not be denied based solely on a health care provider's failure to adhere to the IMC guideline. The guidelines are not intended to be the basis for the imposition of civil liability or professional sanctions. They are not intended to either replace a treating provider's clinical judgment or to establish a protocol for all injured workers with a particular condition. It is understood that some injured workers, for example those with red flag conditions, will not fit the clinical conditions contemplated by a guideline.

Symptom duration is classified as acute (< one month), subacute (one to three months), and chronic (> three months). If an injured worker experiences more than one recurrence of neck pain in a year, except in cases of a new injury, it should not be classified and treated as an acute neck problem. In this case, it is considered a recurrent or flare-up neck problem, and secondary assessment and treatment methods should be utilized along with an emphasis on active therapy and prevention strategies. This guideline does not address the evaluation and management of chronic neck problems including chronic pain syndrome.

For the purpose of this document, a provider is defined as any health care provider acting within the scope of his/her practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician.

All health care providers acting within the scope of their practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician, shall be allowed to bill and be reimbursed in accordance with usual practices.

A provider may vary from these guidelines if, in his or her judgment, variance is warranted to meet the health care needs of the injured worker and that variance remains within the standards of practice generally accepted by the health care community, and the provider documents the need for the variance in the evaluation report or the medical treatment record in the manner that is generally accepted by the health care community.

Not every medical situation can be addressed in this guideline and medical standards change constantly. The documentation required of the provider is necessary to monitor and explain the use of variances.

In all cases, the provider shall document, no later than 6 months from the date of injury whether further treatment is warranted and whether the injured worker has significant subjective and objective findings of the condition not having plateaued.

1.0 Initial Assessment of Neck Injuries

1.1 Purpose

The purpose of the initial assessment is to establish a working diagnosis and assign the injured worker into one of five initial clinical categories of neck problems:

1) Conditions involving the bony spinovertebral axis such as cancer, infection or fracture;

2) Intraspinal pathology involving neurological conditions such as radiculopathy or myelopathy;

3) Arthritic or inflammatory conditions;

4) Mechanical conditions; or

5) Referred neck pain due to viscerogenic and/or other causes.

In addition, the initial assessment looks for (and documents for the chart) other factors which might have an impact upon a injured worker's symptoms and/or response to treatment (e.g., work, personal, psychosocial, and economic factors).

1.2 Appropriate Initial Assessment Methods

1.2.1 History and physical

The history and physical examination are the basis upon which any assessment and treatment decisions are to be made. Decisions about diagnostic imaging, laboratory testing, and referral to a specialist should be guided by the clinical features of the history and examination. Only a minority of injured workers will require further diagnostic testing after the initial history and physical examination.

In the history, document the characteristics of pain (type, location, duration, severity, radiation), associated symptoms, precipitating factors, positions and activities that aggravate or relieve the symptoms as well as its impact on function at home and work. Information concerning previous neck injuries, diagnostic and treatment procedures, and response to previous therapies (including home treatments and use of appliances) should be obtained. Document any history of prior or repetitive trauma to the neck.

The use of a pain drawing and/or pain scale may assist in the evaluation of the location, characteristics, and severity of pain, and be utilized in the assessment of treatment response.

The relationship of the symptoms to performance of specific activities should be sought (e.g. computer work, typing, overhead work, hobbies, recreational activities, etc.). In addition, ask key questions pertinent to serious spinal pathology or referred pain (see below). Specifically, ask about neurologic symptoms such as radiculopathy involving an upper extremity or myelopathy involving any extremity or bowel or bladder changes. The initial history should also document relevant past medical and surgical history, occupational history which should include a description of current job duties and the relationship of symptoms to performance of job tasks, and possibly social history which may include tobacco, alcohol and drug use, hobbies, recreational activities, and any pertinent psychosocial issues such as financial, family, or workplace difficulties.

A thorough physical examination that is based upon the complete history and presentation of the injured worker is expected. The evaluation includes, but is not limited to, general appearance, visual inspection and palpation, manual testing of range of motion (after fracture and instability have been excluded), vascular and neurologic examination. A focused neurologic examination that includes reflexes with reinforcement, strength and sensation testing in the upper extremities should be performed. Although most injured workers have localized, non-radiating pain with tenderness on palpation and/or limited range of motion, these findings are non-specific for most neck problems. Limited spinal motion may be useful for planning and monitoring response to treatment and developing appropriate work restrictions.

Examining physicians are frequently presented with the task of identifying the etiology of the pain generator in the upper extremity. Upper extremity pain may be caused by neurogenic problems, musculoskeletal problems, or referred pain related to visceral problems. For example, pain along the radial aspect of the forearm and hand poses a dilemma as to whether the etiology is focal, such as a de Quervain's tenosynovitis; local, such as a radial nerve entrapment syndrome; or a radiculopathy with referred pain down the C6 nerve root distribution.

1.2.1.1 Consider conditions involving the bony spinal vertebral axis

Certain key findings from the medical history and physical examination may raise suspicion of a possible serious underlying condition of the spine which requires immediate diagnosis and prompt treatment, including possible referral for surgical evaluation. The following serious underlying conditions of the spine are suggested by the "Red Flags" listed below:

For cancer especially in those people who are 50 years old or older: history of prior cancer, unexplained weight loss, neck pain not improved with rest, or unexplained fever.

For infection: fever, immunosuppression, intravenous drug use, history of septicemia, or incapacitating pain.

For spinal fracture: instability, history of significant trauma (e.g., motor vehicle accident or fall from height), prolonged use of corticosteroids, severe rheumatologic disease, or alcohol/substance abuse.

1.2.1.2 Consider intraspinal pathology

For compromise of the neuraxis related to spinal cord and/or nerve root compromise: history of significant trauma with sphincter control disturbance, or motor, sensory and/or reflex changes involving the extremities.

Injured workers with clinical findings that suggest underlying conditions of the spinal vertebral axis or intraspinal pathology may require further studies, such as laboratory tests, x-rays, or specialized tests to evaluate for these conditions. The provider should clearly document the need for any additional tests for other serious pathologies during the initial assessment. Management of serious spinal pathology is beyond the scope of this guideline. Injured workers with such problems should be promptly referred to an appropriate specialist for evaluation and management.

1.2.1.3 Consider arthritic or inflammatory conditions

Inflammatory arthridites of the spine which can cause neck symptoms includes ankylosing spondylitis and other spondyloarthropathies. Work-up of these conditions is beyond the scope of this guideline, but should be guided by the clinical findings and suspicion of a systemic illness.

1.2.1.4 Consider mechanical conditions and distinguish from pathology.

For the purposes of determining the appropriate management of neck problems and estimating prognosis, it is helpful to classify injured workers into diagnostic categories, as well as consider symptom duration. Most injured workers can be separated into diagnostic categories based on the location and characteristics of their symptoms and findings.

1.2.1.4.1 The symptoms of mechanical (or non-specific) neck problems are predominantly neck pain, with possible referral of pain to the shoulder or upper arm in a non-dermatomal pattern.

1.2.1.5 Consider radicular neck problems resulting from intraspinal pathology involving one or more nerve roots.

Presenting symptoms are related to specific nerve root(s) and type of pathology and include pain, alteration in sensation, loss of strength, or altered reflexes in various combinations.

1.2.1.6 Consider cord compression syndromes as a manifestation of spinal pathology such as trauma, degenerative changes, tumors or infections.

They are usually complex and beyond the scope of this guideline. However, the provider should be aware of their existence and consider prompt referral to a qualified specialist.

1.2.1.7 Consider referred pain from visceral diseases or other musculoskeletal disorders unrelated to the cervical spine.

These conditions can usually be distinguished by a careful history and physical examination. There should be awareness of anginal equivalents. Examination of the shoulder and upper extremity may reveal findings consistent with a localized joint or muscle problem.

1.2.1.8 Consider other psychosocial factors

Psychological work factors that are known to increase the reporting of a neck injury and lead to prolonged symptoms and disability include job dissatisfaction. If psychological distress is suspected from the history, pain drawing, and/or the physical examination such as the presence of several "nonorganic" physical signs, the injured worker may be at risk for a delayed recovery or poor response to any surgical procedure.

The medical and social history may help the provider evaluate for other risks of delayed recovery and may help plan therapy accordingly. A history of previous neck injuries or surgery, failed previous treatments, prolonged or continuous litigation or disability claims, family or financial problems, or secondary gain may affect treatment response and prolong disability. Chronic pain, depression, and alcohol or substance abuse may prolong disability and influence the choices for therapy. Recreational and other non–work activities which might contribute to neck problems must also be considered in the evaluation and management of neck problems.

1.2.2 Laboratory studies

Laboratory tests should not be ordered routinely in the initial assessment unless an underlying illness is suspected.

(Mail Survey=4) (Consensus Panel=4) [4]

If the injured worker's history, age, or examination suggests cancer, infection, inflammatory arthritis, metabolic or endocrine disorders, or visceral disease, then appropriate laboratory tests may be indicated. The physician must provide a clear rationale of the indications for the test ordered.

1.2.3 Diagnostic imaging

Plain x–rays of the cervical spine are recommended for ruling out fractures in injured workers with acute neck problems when any of the following 'red flags' are present: recent significant trauma (any age), recent mild trauma (injured worker over age 50), suspected instability, history of prolonged steroid use, osteoporosis, or any other 'red flag' consideration. (Sec 1.2.1) (M=4) (C=4) [4]

Plain x–rays may be required prior to manipulation, mobilization or traction of the cervical spine. (M=4) (C=4) [4]

Additional views are not routinely needed but may be indicated on the basis of findings on AP/lateral films. Significant soft tissue injuries may be suspected by the presence of asymmetric spinous process spreading on lateral flexion–extension views.

In the presence of 'red flags', as defined in 1.2.1.1, the use of other imaging studies such as bone scan, CT, or MRI may be clinically indicated even if plain x–rays are negative.

1.2.4. Needle electromyography/nerve conduction studies (EMG/NCS) may be appropriate as baseline evaluation in injured workers with a past history of radiculopathy or spine surgery. (C=4) [4]

1.3 Inappropriate Initial Assessment Methods

All of the following assessment methods have been determined inappropriate during the initial phase of assessment.

Routine use of:

1.3.1 Laboratory studies (M=1) (C=1) [1]

1.3.2 Plain x–rays for evaluation of injured workers with acute neck injuries except as indicated in 1.2.3 (M=1) (C=1)[1]

1.3.3 CT, MRI, myelography, CT–myelography, and bone scan. (M=1) (C=1) [1]

1.3.4 Discography (M=1) (C=1) [1]

1.3.5 Surface electromyography (EMG) (M=1) (C=1) [1]

1.3.6 Computerized strength and range of motion testing (M=1) (C=1) [1]

2.0 Initial Treatment of Neck Injuries

2.1 Purpose

The purpose of the initial treatment of neck injuries is to relieve pain and suffering and to restore functional capacity. The goal is to allow the injured worker to resume necessary activities including return to modified or regular work. Injured workers with radicular neck problems and neurologic deficits may require more intensive management and closer monitoring for further neurologic deterioration that may require additional diagnostic testing with possible surgical treatment.

Treatment may include: 1) education about neck problems; 2) activity and environmental modifications; 3) exercise; 4) medication; and/or 5) physical treatments as delineated later in this section. This guideline does not address treatment for certain types of conditions such as serious underlying spinal pathology or inflammatory arthritis of the cervical spine.

2.2 Appropriate Initial Treatment Methods in the first month.

2.2.1 Education

2.2.1.1 General information

Accurate information concerning soft tissue injury and the usual, expected healing should be provided. (M=4) (C=4) [4]

Patients should be given realistic information regarding recovery, and should be taught principles related to posture (e.g., avoid slumping) and daily activities including work and sports. Safe and effective methods of symptom control need to be presented. Patients should be told that, unless there is pending surgical care or question of a fracture, tumor, or infection, special investigations are not warranted.

2.2.2 Activity and environmental modifications

2.2.2.1 Work restrictions

Modifications of activities including work specific restrictions which are based on the injured worker's work requirements and clinical findings are desirable if functional limitations do not allow continuation of regular work duties. (M=4) (C=4) [4]

Complete work cessation should be avoided, if possible, through the use of modified duty. Written work restrictions should be as specific as possible, and it may be necessary to contact the employer to discuss alternative work within the prescribed restrictions. Injured workers with work restrictions should be re–evaluated within two weeks for determination of work status, response to treatment, and for making appropriate decisions concerning progression to full activities.

2.2.2.2 Environmental/job modification

Environmental modifications including engineering (e.g., work station adjustment) and administrative controls (e.g., job rotation) to limit or eliminate work activities that might lead to or aggravate neck problems should be considered early on for symptomatic workers who have work–related risk factors for neck problems. (M=4) (C=4) [4]

2.2.3 Exercise

2.2.3.1 General exercise recommendations

Exercise programs under the supervision of a qualified physician or physical therapist may be used for up to 6 visits. Rehabilitative exercise may be indicated to strengthen the neck muscles, for stabilization, to improve range of motion, to normalize posture, and to promote safe body biomechanics. (C=3) [3]

There is evidence that one–on–one training in home exercises for cervical motion and extension postures will reduce the duration of pain, compared to rest and the use of a collar. Home programs need to be monitored and reinforced weekly for compliance and progress.

2.2.4 Medications

2.2.4.1 Acetaminophen

Acetaminophen has commonly been regarded as having an analgesic effect, but little or no known antiinflammatory effect. (M=4) (C=4) [4]

The therapeutic objective for its use in acute neck problems is pain relief. Acetaminophen is reasonably safe and is acceptable for treating injured workers with acute neck problems.

2.2.4.2 Non-steroidal antiinflammatory drugs (NSAID's)

NSAID's and aspirin are acceptable for treating injured workers with acute neck problems but have a number of potential side effects. (M=4) (C=4) [4]

2.2.4.3 Muscle relaxants

Muscle relaxants are an option in the treatment of injured workers with acute neck problems. (M=4) (C=4) [3]

2.2.4.4 Opioid Analgesics

Opioids may be necessary if the pain is refractory to treatment with non-opioid analgesics. (M=3) (C=4) [3]

Oral opioid analgesics commonly given to injured workers with cervical problems include morphine derivatives (opioids) and synthetic opioids. Their therapeutic objective in treating neck problems is temporary pain relief. The decision to use opioids should be guided by consideration of their potential complications relative to other treatment options.

2.2.4.5 Other Medications

Other medications not mentioned above may also be beneficial with appropriate justification, including, but not limited to:

(a) Antidepressants, (C=4) [3]

(b) Other non narcotic analgesics (C=4) [3]

(c) A short course of oral corticosteroids (C=4) [2]

2.2.5 Physical treatments

2.2.5.1 Manual medicine/manipulative techniques, as performed by a physician defined by the California Labor Code and the scope of practice for each group, may be helpful in injured workers with acute problems. (M=4) (C=4) [4]

Neurologic deficits should be clinically investigated and instability resulting from fracture subluxation should be ruled out before manipulation is undertaken. Functional improvement should be demonstrable as well as symptomatic benefit. If this has not occurred after one month, the injured workers should be reevaluated.

2.2.5.2 Manual medicine/mobilization, as performed by a physician or another appropriately licensed health care provider as defined by their scope of practice, may be helpful in injured workers who have acute problems without radiculopathy when used within the first month of the symptoms. (M=4) (C=3) [3]

Progressive neurologic deficits should be investigated and instability should be ruled out before aggressive mobilization is undertaken. Functional improvement should be demonstrable as well as symptomatic benefit. If this has not occurred after one month, the injured workers should be reevaluated.

2.2.5.3 Other physical modalities/treatments

Manual medicine/therapy can be supplemented by passive modalities including but not limited to iontophoresis, phonophoresis, electrical stimulation, ultrasound, diathermy, and other physical agents during the first four weeks of treatment. (M=4) (C=3) [3]

Passive modalities should not be used as the sole form of treatment. They may be combined with an active program which emphasizes progressive exercises. Use of thermal modalities in conjunction with physical treatment may be useful.

2.2.5.4 Frequency of treatment

The total number of visits for physical treatments may be up to 12 within the first month. (M=4) (C=4) [4]

2.2.5.5 Transcutaneous Electrical Nerve Stimulation (TENS)

Use is limited to 4 weeks in conjunction with other conservative measures. If no functional and symptomatic benefit has been demonstrated after two weeks, this treatment should be discontinued. (C=3) [3]

2.2.5.6 Traction

Traction (either manual or mechanical) may be of benefit in the treatment of acute neck problems. (M=4) (C=4) [3]

2.2.5.7 Acupuncture

Acupuncture has been reported as useful for acute pain and may be of benefit to facilitate exercises. The frequency of treatment may be up to three times per week for four weeks as long as the injured worker has documented improvement. (M=4) (C=4) [3]

2.2.5.8 Cervical Collars

Collars that adequately stabilize the neck may be of benefit for up to a week for acute neck problems. Continual dependence on a cervical collar is not advisable. (M=4) (C=4) [3]

2.3 Case Management

Management during the first 4 weeks of treatment will be determined by the clinician's evaluation of the injured worker's response to therapy. Generally, re-evaluation of the problem, determination of treatment effectiveness and work status should be performed every 1–2 weeks until return to modified or full work is achieved. At each visit, the initial diagnosis should be confirmed or modified and the treatment plan adjusted if necessary. If symptoms continue to increase despite adequate conservative therapy, or if there is significant disability due to pain, referral to a provider trained and experienced in the evaluation and treatment of occupational disorders is warranted in the initial treatment phase. Once the acute pain is controlled, the treatment should focus on progressive rehabilitative exercises to increase strength and endurance and activity modification. This approach minimizes the chance of recurrence once normal occupational duties are resumed.

2.4. Inappropriate Initial Treatments

The following treatment methods are inappropriate as routine treatment in the initial 4 week symptom phase.

2.4.1 Bed rest (M=1) (C=1) [1]

2.4.2 Surgical treatments (M=1) (C=1) [1]

Except for acute neurologic deterioration or structural disruption, surgery is unwarranted.

2.4.3 Exclusive use of passive physical modalities (M=1)(C=1)[1]

2.4.4 Biofeedback (M=1) (C=1) [1]

3.0 Secondary Assessment of Neck Injuries (from 1 – 3 months)

3.1 Purpose

The purpose of reassessment is to determine the reason for delayed recovery in injured workers who remain symptomatic and have not functionally improved and returned to regular work after one month of conservative treatment. The first step of reassessment is a complete interval history and physical examination with assignment of the injured worker into one of the five clinical categories:

1) Conditions involving the bony spinovertebral axis such as cancer, infection or fracture;

2) Intraspinal pathology involving neurological conditions such as radiculopathy or myelopathy;

3) Arthritic or inflammatory conditions;

4) Mechanical conditions; or

5) Referred neck pain due to viscerogenic and/or other causes.

Depending on the findings, diagnostic evaluation at this point may include spinal imaging tests, bone scan, electrophysiologic tests, lab tests, functional capacity tests, and/or ergonomic evaluation. The clinical indications for each of these diagnostic methods is given below. Physician assessment should be at least twice monthly. Results of all studies should be reviewed and reported within a week.

3.2 Appropriate Secondary Assessment Methods

3.2.1 Plain film x-rays (M=4) (C=4) [4]

Clinical indications:

Persistent cervical symptoms.

3.2.2 CT, MRI

Clinical indications:

Findings that suggest compromise of the neuraxis (radiculopathy from a herniated disc and/or spinal stenosis), or a neurologic deficit. These studies are most suitable when surgery is being considered and/or the injured worker has failed an appropriate course of treatment. (M=4) (C=4) [4]

Findings are suggestive for tumor or infection, fracture or dislocation. (M=4) (C=4) [4]

3.2.3 Myelography, and CT myelography

Clinical indications:

Same indications as for CT/MRI, but should only be ordered in conjunction with a specialist referral. (M=4) (C=4) [4]

3.2.4 Bone scan

Clinical indications:

Findings on history, examination, laboratory or other imaging studies are suggestive for, but not limited to, tumor, infection, fracture, arthritis, and reflex sympathetic dystrophy. (M=4)(C=4)[4]

3.2.5 Laboratory testing

Clinical indications: As deemed appropriate by the reassessment findings. (M=4) (C=4) [4]

3.2.6 Needle electromyography / nerve conduction study (EMG/NCS)

Clinical indications:

EMG/NCS may be helpful for evaluating suspected nerve root dysfunction, or neuropathy. (M=4) (C=4) [4]

3.2.7 Ergonomic evaluation

Clinical indications:

A worksite evaluation with the affected injured worker may be performed if clinically indicated. (M=4) (C=3) [3]

The evaluation should be done by a professional trained in these types of evaluation. History, job description, and workplace inspection can be useful to identify physical work factors that may be contributing to the development or exacerbation of neck problems,which can prevent return to usual work.

3.2.8 Psychological Assessment

Clinical indications:

Focused psychological assessment may be indicated if factors (e.g., stress, job dissatisfaction, depression, substance abuse, symptom magnification) may be contributing to delayed recovery, noncompliance or lack of response to appropriate treatment in subacute and chronic neck problems. (M=4) (C=4) [4]

In an injured worker manifesting signs of risk for delayed recovery, psychological assessment may be helpful for determining if significant psychological or personality factors are contributing to the injured worker's disability.

The presence of several "nonorganic" physical signs may also identify injured workers who need further psychological testing and evaluation. These injured workers may need specific behavioral or psychological treatments early on.

Psychological and personality evaluations may be utilized preoperatively in an injured worker who is being considered for surgical treatment to assist in selection and planning if a behavioral intervention is necessary.

3.2.9 Somatosensory evoked potentials (SEP) should only be performed after EMG and other diagnostic modalities have proven to be of no help and specific justification must be given. (M=4) (C=3) [3]

3.3 Inappropriate Secondary Assessment Methods

The following methods have been determined inappropriate for secondary assessment.

3.3.1 Discography (M=1) (C=1) [1]

3.3.2 Surface EMG (M=1) (C=1) [1]

3.3.3 Diagnostic blocks and injections including facet joint injections are inappropriate at this phase of the treatment. (M=1) (C=1) [1]

3.3.4 Computerized strength and range of motion testing

Computerized testing is only useful if it leads to a specific exercise program which allows measurable progress. Its routine use is not recommended. (M=1) (C=1) [1]

4.0 Secondary Treatment of Neck Injuries

4.1 Purpose

The purpose of secondary treatment is to provide symptomatic relief for the injured worker with a cervical problem while continuing to intensify efforts in active treatments, such as exercise. The goal of secondary treatment is to prevent progressive deconditioning and permanent disability, while promoting return to full work for those who are either off work or on modified duty. Treatment is based on the findings of the diagnostic re-evaluation at four to six weeks.

4.2 Appropriate Secondary Treatment Methods

4.2.1 Physical treatments

Treatment following the initial trial of four weeks generally should not exceed two times a week. (M=4) (C=3) [3]

The continuation of treatments is based on reported improvement in subjective complaints, decreased objective factors/clinical findings, return to work, or decreased work restrictions.

Active care, education and rehabilitative exercise may be indicated for strengthening of the neuromusculoskeletal structures of the neck and associated regions and for pain control. (M=4) (C=4) [4]

4.2.2 Work conditioning

Work conditioning programs which include general conditioning exercises and graduated performance of simulated job tasks may be useful in preparing the injured worker to return to a specific job or in determining work restrictions. (M=4) (C=4) [4]

4.2.3 Epidural steroid injections

Clinical indications:

For a patient with a radicular neck problem, a trial of epidural steroid injections may be helpful for short-term pain relief and avoiding surgery. (M=4) (C=4) [3]

4.2.4 Surgical treatment methods

Clinical indications:

Surgical treatment may be appropriate for injured workers with radicular neck problems in the following circumstances: 1) the clinical evaluation demonstrates persistent symptoms and findings that prevent resumption of normal activities, and they are unresponsive to an appropriate six weeks of active non-surgical treatment; and 2) the diagnostic test findings objectively verify a surgically remediable condition that corresponds with the clinical exam; and 3) surgery is not contraindicated by significant physical or psychological comorbidity that might suggest a poor surgical outcome for the injured worker. (M=4) (C=4) [4]

4.2.5 Injection therapies

4.2.5.1 Trigger point injections

Standard trigger point injections with saline or local anesthetic are only for occasional use, not standing alone as a sole treatment but as part of a multi-disciplinary approach. (M=4) (C=4) [3]

4.2.6 Acupuncture

Acupuncture treatment is a physical treatment which may be useful following initial treatment to manage pain. Treatment may be up to 12 visits in 8 weeks as long as the injured worker is showing documented, incremental improvement. (M=4) (C=4) [3]

4.2.7 TENS Unit

Use is limited to four weeks in conjunction with other conservative measures. (C=4) [3]

4.2.8 Appropriate medication as listed under 2.2.4 (M=4)(C=4) [4]

4.2.9 Biofeedback [3]

4.3 Inappropriate Secondary Treatments

The following treatments have been determined as inappropriate for secondary treatment:

4.3.1 Ligamentous injections (sclerotherapy/prolotherapy) (M=1) (C=1) [1]

4.3.2 Bed rest (M=1) (C=1) [1]

4.4 Case management

If the injured worker has not resumed near normal work duties after 8 weeks in the secondary treatment phase, including adherence to a graded exercise program, a referral to a physician or surgeon trained and experienced in the evaluation and treatment of occupational disorders is recommended. Consultation should include a complete evaluation and recommendations for treatment and return to appropriate work. If psychosocial issues are judged to contribute to delayed recovery or heightened disability, it may be appropriate to have a psychiatric evaluation. If the condition becomes chronic or disabling despite full conservative treatment including appropriate medical, rehabilitative, and ergonomic interventions (and surgery if indicated), the injured worker should be evaluated for permanent disability.

5.0 Tertiary Management of Neck Injuries

Late rehabilitation after three months of disabling symptoms may require a multi-disciplinary approach focused on returning the injured worker to work. At this time, this guideline does not address the evalua-

tion and management of chronic neck problems including chronic pain syndrome.

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Appendix 7.0 Description of IMC Appropriateness Levels

| | Level 4 | Level 3 | Level 2 | Level 1 |
|---|---|---|---|---|
| Good Research Based Evidence | Yes | No | No | No |
| Clinical Evidence | Yes | Yes | Some | No |
| Consensus Of The Health Care Community | Yes | Yes | Partial | No |
| Clinical Utility Of Appropriateness Level For Common Neck Injuries | Appropriate and recommended | Acceptable or appropriate in most cases | Appropriate in uncommon individual cases. Document the case-specific clinical factors or circumstances which make this procedure reasonable and necessary for this injured worker. | Inappropriate |

NOTE: Authority cited: Section 139(e)(8), Labor Code. Reference: Section 139(e)(8), Labor Code.

HISTORY

1. New section filed 7–18–97; operative 8–17–97 (Register 97, No. 29).
2. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
3. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

## § 72. Treatment Guideline for Occupational Asthma.

The method of treating occupational asthma shall be as set forth below in the "Treatment Guideline for Occupational Asthma" as adopted by the Industrial Medical Council on July 20, 1995.

TREATMENT GUIDELINE FOR OCCUPATIONAL ASTHMA

Asthma related to workplace exposures can be classified into the following two major types:

1. Occupational asthma
2. Work–aggravated asthma

*Occupational asthma* is a condition characterized by respiratory symptoms, variable airflow limitation and/or airway hyperresponsiveness caused by exposure to an agent(s) in the workplace. Occupational asthma can be due either to sensitizer or irritant agents. *Work–aggravated asthma* occurs when asthma that was present prior to employment at a specific job is aggravated by exposure to an agent(s) in the workplace.

Asthma is a condition that is characterized by recurrent exacerbations interspersed with periods of relative remission. The dynamic nature of the disease must be considered both at the time of initial assessment and during treatment. The primary principle of management of occupational asthma or work–aggravated asthma is prevention of exposure to the causative or aggravating agent(s) at the workplace.

Scope of the guideline: This guideline deals with the assessment and treatment of occupational asthma and work–aggravated asthma. Because causation and work–relatedness are fundamental to the diagnosis of either occupational asthma or work–aggravated asthma, this guideline will deal with these issues.

A physician may vary from these rules if in the judgment of the physician, variance is warranted to meet the health care needs of the patient and that variance remains within the standards of practice generally accepted by the health care community, and the physician documents the need for the variance in the evaluation report or the medical treatment record in the manner that is generally accepted by the health care community.

Not every medical situation can be addressed in these regulations and medical standards change constantly. The documentation required of the physician is necessary to monitor and explain the use of variances.

I. Initial Assessment

A. Purpose

The purpose of the initial assessment is to establish the clinical database upon which the diagnosis of asthma and the likelihood of work–relatedness will be based. The essential elements to the initial assessment include the following: 1) the presenting symptoms; 2) a detailed understanding of the circumstances of the onset of the illness; 3) the course of the illness; 4) past medical history, including risk factors for airways disease; 5) occupational and environmental exposure history; 6) physical examination; 7) selection of appropriate laboratory or field tests; 8) information about exposure(s) from the workplace or other sources.

B. Appropriate assessment methods

1. History and Physical

A key feature of the history in patients with asthma is the generally episodic nature of respiratory symptoms. The most common symptoms are cough (productive or nonproductive), wheezing, chest tightness, and shortness of breath. Some patients with occupational asthma who have been exposed to the causative agent(s) in the workplace for a long time may have chronic symptoms. Even these patients will generally experience some improvement of their symptoms when removed from exposure to the causative agent(s) for a period of several weeks. Nonspecific airway hyperresponsiveness to a variety of stimuli such as exercise, cold air, and irritants is characteristic of asthma and simple questions about the effects of such stimuli should be asked.

Another feature of the history is whether a latent period occurred (i.e., an asymptomatic period of weeks, months, or even years after exposure started before the onset of the illness). Sensitizer–induced occupational asthma typically involves a latent period, while asthma induced by high–level irritant exposure does not involve such a period.

Patients and their health care providers may not always recognize the early symptoms of occupational asthma. The temporal relationship between an exposure and the onset of symptoms is highly variable (see Appendix 1). Evidence for remittance of symptoms with weekends, vacations, or change of job tasks should be sought.

In addition to asking the patient about his/her past medical history, every effort should be made to obtain copies of previous medical records, including records of workplace medical surveillance programs. The pa-

tient should be questioned about childhood respiratory problems, frequency of "colds" or episodes of "bronchitis," childhood asthma, allergies (including eczema and "hay fever"), previous pneumonia, or other serious respiratory illness. The smoking history should include the packs per day and the years smoked. The cumulative tobacco smoke exposure should be expressed in terms of total pack–years. The patient also should be questioned as to any history of cardiovascular problems and whether or not the patient currently has cardiovascular symptoms.

A complete chronological occupational history is desirable since previous jobs may have involved sensitizing or irritant exposures. A more detailed understanding is needed of the job held by the patient at the time of the onset of his/her respiratory illness and of all processes at the workplace. Particular attention should be paid to processes that transfer materials from one contained space to another, that disturb a potential allergen reservoir, and that involve two–component paints, coatings, adhesives, foams, or products that must be mixed immediately before use. Recognized exposures should be listed along with the presence and type of ventilation and/or respiratory protective equipment. The effects of work process changes on symptoms should be explored, as well as the occurrence of fires or spills. Routine tasks such as maintenance and clean–up should be clarified, in addition to episodic tasks.

Non–occupational environmental exposures such as the presence of pets in the home or the use of potentially sensitizing or irritant materials in hobbies or crafts should be discussed.

The physical examination should be directed to both the upper and lower respiratory tract. Rhinitis and/or sinusitis frequently coexist with asthma, whether the asthma is sensitizer or irritant–induced. Thus, the nasal mucous membranes and pharynx should be inspected and the sinuses palpated. The presence of conjunctivitis may be due to either sensitizer or irritant exposure. Pharyngitis is more likely to be a sign of irritant exposure. The neck should be auscultated for stridor. Auscultation of the chest during quiet breathing and forced exhalation should be performed with notation made of wheezes, rhonchi, or crackles.

Examination of the cardiovascular system should be performed to rule out a non–respiratory cause of the patient's symptoms. The skin should be inspected for evidence of thermal or chemical burns and for eczematous dermatitis which can accompany allergic asthma. The extremities should be inspected for clubbing, cyanosis, and edema. Examination of other organ systems should be guided by the history.

It is important to recognize that the physical examination of a patient with occupational or work–aggravated asthma is often normal when the patient is away from the causative or aggravating workplace exposure.

2. Laboratory or field testing

Objective evaluation of asthma should begin with the first visit.

a. Spirometry

Spirometry should be performed before and after inhaled beta–agonist bronchodilator administration to look for reversible airflow limitation at the time of the initial assessment. A ≥ 12% improvement in forced expiratory volume in 1 sec ($FEV_1$) with an absolute value increase of ≥ 200 ml after bronchodilator is considered evidence of reversibility of airflow limitation. Spirometry should be performed using equipment and techniques that meet the criteria of the American Thoracic Society.

If available, spirometry performed before and after the workshift ("cross–shift" spirometry), or at the end of a period off work and again after a period back at work, may document work–relatedness of occupational asthma or work–aggravated asthma. Cross–shift spirometry, although specific, is not always sensitive for occupational asthma, in part because late asthmatic reactions which occur after work will not be detected across a single shift.

b. Nonspecific challenge testing

If spirometry shows no airflow limitation and asthma is suspected, a methacholine or histamine challenge test to look for nonspecific airway hyperresponsiveness is indicated. When the baseline $FEV_1$ is below 70% of the predicted value, response to inhaled bronchodilator rather than measurement of airway responsiveness is the appropriate test to establish the diagnosis of asthma. It is imperative that standardized methods be used in the performance of nonspecific challenge tests. The results should be expressed as the provocative concentration to cause a decline in $FEV_1$ of 20% ($PC_{20}$). Airway hyperresponsiveness is present when the $PC_{20}$ is ≤ 8 mg/ml methacholine.

If necesary, serial (repeated) nonspecific challenge testing, similar to serial spirometry, can be used to document work–relatedness of occupational asthma or work–aggravated asthma. Airway responsiveness should increase during a period of exposure to the causative agent(s) and to decrease when the exposure ceases.

c. Peak expiratory flow rate

The serial measurement of peak expiratory flow rate (PEFR) is useful in confirming the work–relatedness of occupational asthma or work–aggravated asthma. Measurements should be made at least four times per day for at least two weeks, including both days at work and days off work. With some patients, it may take up to seven to ten days away from work before PEFR improvement occurs. Patients must be trained in peak flow measurement. A minimum of three forced expiratory maneuvers should be recorded and the two best readings should be within 20 L/min of each other or further readings should be made. The best peak expiratory flow rate should be recorded and used for analysis. A ≥ 20% diurnal variability in PEFR is supportive evidence for the diagnosis of asthma.

d. Specific challenge testing

Specific challenge testing with the putative agent should only be done when the diagnosis cannot be confirmed by other measures. When necessary, specific challenges should be performed in a hospital setting where there are physicians experienced in this type of testing. The possibility of late asthmatic reactions must always be considered when specific challenges are performed.

e. Exercise challenge testing

Most people with asthma have nonspecific airway hyperresponsiveness that leads to exercise–induced asthma (EIA). Therefore, this condition should be anticipated in patients with occupational asthma or work–aggravated asthma. A history of cough, wheezing, chest tightness, shortness of breath, or lack of endurance during or after exercise suggests EIA. Exercise testing should not be done routinely in the investigation of occupational asthma or work–aggravated asthma. However, when doubt about the presence of EIA exists, an exercise challenge can establish the presence of this condition. Spirometry is performed before and after exercise; if a patient has a ≥ 15% decline in $FEV_1$ from baseline after exercise, then EIA is present.

Methacholine challenge is more sensitive than exercise challenge, even in patients with a history suggestive of exercise–induced asthma (EIA). If it is clinically important to confirm the clinical suspicion that exercise induces bronchospasm, exercise challenge should be performed under standardized conditions of exercise intensity and duration and ambient temperature and humidity in a laboratory with experience in exercise testing; the sensitivity of the test can be enhanced by having the patient orally inhale cold, dry air during exercise.

f. Lung Volumes, Diffusing Capacity and Pulmonary Exercise

Measurement of lung volumes, diffusing capacity for carbon monoxide, and standard pulmonary exercise testing should be obtained only if indicated by the patient's history or physical findings.

g. Blood Work

Certain specific blood tests should be obtained but only if indicated by the patient's history or physical findings. When the physician considers it necessary to obtain certain blood tests, the purpose should be stated clearly. (e.g. Alpha 1–antitrypsin for non–smoker with suspected coexisting chronic obstructive pulmonary disease; arterial blood gasses for patients in whom hypoxemia or hypoventilation with hypercapnea is suspected based on the physical examination; or a complete blood count and/or a sputum culture with sensitivities for patients in whom complicating acute bronchitis is suspected.)

h. Chest Imaging Studies

Chest radiographs or chest CT scans should be obtained only if indicated by the patient's history or physical findings.

3. Information from the workplace

Information that should be requested from the workplace includes Material Safety Data Sheets (MSDSs), industrial hygiene records (including environmental monitoring data), and employee health records. Such information is often valuable in the determination of work–relatedness of asthma symptoms.

C. Inappropriate initial assessment methods

1. Routine blood work

Blood chemistries are not indicated. The total IgE may be elevated but is neither sensitive nor specific.

2. Routine immunologic tests

Skin prick testing with a specific antigen suspected of causing occupational asthma may be useful to document sensitization, but blindly testing the patient with a panel of available antigens is not indicated, unless his/her history suggests the likelihood of multiple allergies. "*In vitro*" testing for the presence of IgE antibodies against a specific antigen suspected of causing occupational asthma may also be useful to document sensitization, but blindly testing the patient's serum against a panel of available antigens is not indicated.

D. Diagnosis of occupational asthma or work–aggravated asthma

The diagnosis of occupational asthma or work–aggravated asthma should be based on the following features: 1) the presence of airflow limitation and its reversibility; 2) in the absence of airflow limitation, the presence of nonspecific airway hyperresponsiveness; and 3) the demonstration of work–relatedness.

1. Requirements for the diagnosis of occupational asthma

a. Diagnosis of asthma (see Appendix 2)

b. An association between symptoms of asthma and work

c. One or more of the following criteria:

i. Workplace exposure to an agent known to cause occupational asthma (see list in reference 9)

ii. Work–related change in $FEV_1$ (≥ 12% decline from the pre–shift baseline value) or PEFR (≥ 20% diurnal variability on work days but not on days off work)

iii. Work–related change in nonspecific airway responsiveness (a decrease in $PC_{20}$ that is two or more doubling doses lower than the pre–exposure baseline value)

iv. Positive response to specific inhalation challenge (≥ 15% decline in $FEV_1$ from the pre–challenge baseline value)

v. Onset of asthma with a clear association with a symptomatic exposure to an irritant agent in the workplace

Occupational asthma should be diagnosed when a + b + c(ii) or c(iii) or c(iv) or c(v) are present. When a + b + c(i) are present, occupational asthma is likely.

Work–aggravated asthma should be diagnosed when a + b + c(ii) or c(iii) are present and the patient was symptomatic or required medication to control his/her asthma at the time of starting the job in question. When a + b are present and the patient was symptomatic or required medication at the time of starting the job in question, work–aggravated asthma is likely.

II. Initial Treatment

A. Purpose

The most important feature of the treatment of occupational asthma or work–aggravated asthma is to prevent further exposure to the causative agent(s). The medical treatment of patients with occupational asthma or work–aggravated asthma is not different from treatment of patients with nonoccupational asthma. The recommendations of the National Asthma Expert Panel should be followed and are summarized below. Effective management of asthma depends on both pharmacologic and nonpharmacologic measures. In addition to prevention of further exposure to the causative or aggravating agents(s) at the workplace, patient education, a step–care approach to pharmacologic therapy, and objective measures to monitor the severity of disease and response to therapeutic interventions (including serial monitoring of PEFR). The goals of asthma management include the following: 1) to maintain normal activity levels (including exercise); 2) to maintain (near) "normal" pulmonary function; 3) to prevent chronic and troublesome symptoms (e.g., coughing or breathlessness at night, in the early morning, or after exercise); 4) to prevent recurrent exacerbations of asthma; and 5) to avoid adverse effects from asthma medications. With some patients, it may take several months to achieve these goals.

B. Appropriate initial treatment methods

1. Prevention of further exposure to the causative agent(s)

a. When occupational asthma is caused by a sensitizing agent, the affected worker should be removed from all further exposure to the agent because of the risk of severe bronchospam and even death. Early diagnosis and cessation of exposure have been documented to increase the likelihood of a favorable outcome. Job transfer within the same workplace may be recommended only if low–level secondary exposure that may cause exacerbations of asthma is not anticipated.

b. When occupational asthma is caused by an irritating agent or there is work–aggravated asthma, removal of the affected worker from further exposure is preferred, but exposure control measures such as product substitution, process enclosure, increased local exhaust ventilation, and/or respiratory protective gear may be appropriate on a trial basis. Monitoring of symptoms, medication use, and PEFR should be done during such a trial.

2. Education

Health education is an essential tool in the management of asthma. Patient education should begin at the time of diagnosis and be integrated with follow–up care. A management partnership between the patient and the health care provider should be established, and the patient should be encouraged to understand asthma and to learn and practice the skills necessary to manage his/her disease. The essentials of asthma patient education include the following: 1) key points about the symptoms and signs of asthma; 2) characteristic airway changes in asthma (inflammation, bronchospasm, excessive and thick mucus); 3) asthma triggers and how to avoid them; 4) how medications work and potential adverse effects; 5) demonstration of the correct use of metered–dose inhalers; 6) criteria for pre–medicating to prevent onset of symptoms and for initiating treatment after onset of symptoms; 7) indications for emergency care; and 8) optimal use of serial PEFR monitoring.

3. Medications

Appropriate medications for the treatment of asthma include inhaled beta–agonist bronchodilators, inhaled corticosteroids, cromolyn sodium, nedocromil sodium, theophylline, and oral corticosteroids. The following step–care approach to the use of these medications has been recommended in non–emergent cases:

a. Step 1 — inhaled beta–agonist as needed

b. Step 2 — inhaled beta–agonist as needed and either an inhaled corticosteroid or cromolyn sodium or nedocromil sodium. Inhaled steroids should be used in low doses; i.e. < 800 mcg of beclomethasone dipionate (BDP) or the equivalent.

c. Step 3 — In addition to Step 2; higher doses of inhaled corticosteroids (in doses > 800 mcg of BDP or the equivalent) should be used plus oral theophylline. Short courses of oral corticosteroids may be used as required for acute exacerbations.

d. Step 4 — the addition of an oral corticosteroid for maintenance therapy on a daily, or preferrably alternate day, schedule.

4. Exercise

The presence of EIA is important to consider when advising patients about work and recreational activities. EIA can be prevented by pre–medication with inhaled beta–agonist bronchodilators or cromolyn sodium or nedocromil. Patients with occupational asthma or work– aggravated asthma should be encouraged to exercise in order to stay physically fit. Their asthma needs to be effectively managed so that they are able to do so.

5. For a more detailed discussion of the staging of asthma and and treatment modalities, the reader is referred to Primary Reference item # 22 (Kleerup,E. and Tashkin, D.).

6. Respiratory therapy modalities when clinically indicated and upon prescription by an M.D. or D.O.

C. Inappropriate initial treatments include, but are not restricted, to:

1. Antibiotic therapy if the patient shows no signs of infection
2. Supplemental home oxygen unless the patient shows signs of hypoxemia (i.e. $PaO_2 < 60$)
3. Allergy hyposensitization injections
4. Sublingual hyposensitization treatments
5. Oral anti-fungal therapy for "intestinal candidiasis"
6. Chelation therapy
7. Sauna treatments (so-called Hubbard therapy)
8. Home nebulizer administration of bronchodilator medications
9. Acupuncture
10. Other treatment modalities offered or recommended by non-M.D., non-D.O. health care providers.

III. Secondary Assessment

A. Purpose

The purpose of early reassessment is to make sure that the patient with occupational asthma or work-aggravated asthma is being optimally managed according to the guidelines of the NationalAsthma Expert Panel described above.

The timing of the reassessment depends on the severity of the patient's asthma at the time of the initial assessment. The more severe the disease, the earlier the reassessment should be scheduled. The severity of the patient's asthma should be classified according to the similar guidelines of the National Asthma Expert Panel or the American Thoracic Society.

B. Appropriate secondary assessment methods

The first step of reassessment is a history and directed respiratory tract physical examination. The second step is to review the patient's serial PEFR log/symptom diary, if available. The third step is to perform spirometry. Based on the results of the reassessment, the severity of the patient's asthma should again be classified according to the National Asthma Expert Panel or the American Thoracic Society guidelines.

C. Inappropriate secondary assessment methods

(see I.C. above)

IV. Secondary Treatment

A. Purpose

Because occupational asthma or work-aggravated asthma may not resolve with cessation of exposure to the causative agent(s), and asthma, in general, may improve or worsen with time, periodic reevaluation of the management strategy is necessary. The purpose of secondary treatment is to help the patient whose asthma is slow to resolve.

B. Appropriate secondary treatment methods

Depending on the severity of asthma, efforts to improve control of symptoms and improve pulmonary function should be undertaken. Such efforts may include further recommendations regarding the workplace, job transfer or relocation, avoidance of nonoccupational trigger factors, continued patient education, and changes in medications. Medications should be changed following the step-care approach recommended by the National Asthma Expert Panel (see II.B.2 above).

The use of a spacer device may enhance efficacy and reduce adverse effects of inhaled medications.

Effective evaluation and treatment of rhinitis/sinusitis may help to improve control of asthma symptoms.

C. If the asthmatic condition has not resolved or is not under good clinical control with medical management, and all necessary steps to eliminate workplace exposure to the offending agent have been taken, the injured worker should be referred to a pulmonary specialist.

D. Inappropriate secondary treatments

(see II.C above)

V. Prevention

A. Purpose

Symptomatic occupational asthma and work-aggravated asthma can only be prevented at the present time through avoidance of exposure to sensitizing or irritating agents and through medical surveillance for early signs of disease.

B. Appropriate preventive measures

1. Avoidance of workplace exposure to asthma-inducing or asthma-aggravating materials.

The list of materials used in a workplace should be periodically reviewed for potential sensitizing or irritating agents. Substitution of other materials that do not contain such agents should be encouraged. If it is necessary to use materials containing known sensitizing or irritating agents, then efforts should be made to reduce exposure of workers by process enclosure, local exhaust ventilation, and/or respiratory protective gear.

If materials containing known sensitizing or irritating agents are used, then environmental monitoring by an industrial hygienist should be performed to document the level of exposure in the workplace. If the measured level is high, then appropriate control measures to reduce exposure should be taken.

2. Medical surveillance

Medical surveillance programs for the detection of early evidence of asthma are appropriate for workplaces where exposure to known sensitizing or irritating agents is likely to occur (e.g., a small animal care facility or a polyurethane foam packing facility). Tests that have been proposed for the surveillance of occupational asthma and work-aggravated asthma include the following: respiratory questionnaires, serial PEFR monitoring, serial nonspecific challenge testing. The predictive value of these proposed surveillance tests has not been adequately studied, but there are some data to support the use of serial PEFR monitoring.

If a medical surveillance program is instituted in a workplace, appropriate intervention to reduce the exposure of workers with early evidence of work-related disease must be incorporated into the program.

3. Public health responsibility of physicians diagnosing occupational asthma

There may be additional workers at risk for occupational asthma in a workplace where one worker has been diagnosed to have the disease. Evaluation of exposures at the workplace and medical screening of other workers may prevent further cases of occupational asthma. Contacting the employer to arrange a visit to the workplace (or to recommend that this be done by a qualified occupational medicine physician or industrial hygienist) is an appropriate first step in this regard.

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Appendix 1: Symptom Patterns of Asthma Suggesting Work–Relatedness

1. Do symptoms of asthma develop after a worker starts a new job or after new materials are introduced on a job (a substantial period of time may elapse between initial exposures and development of symptoms)?

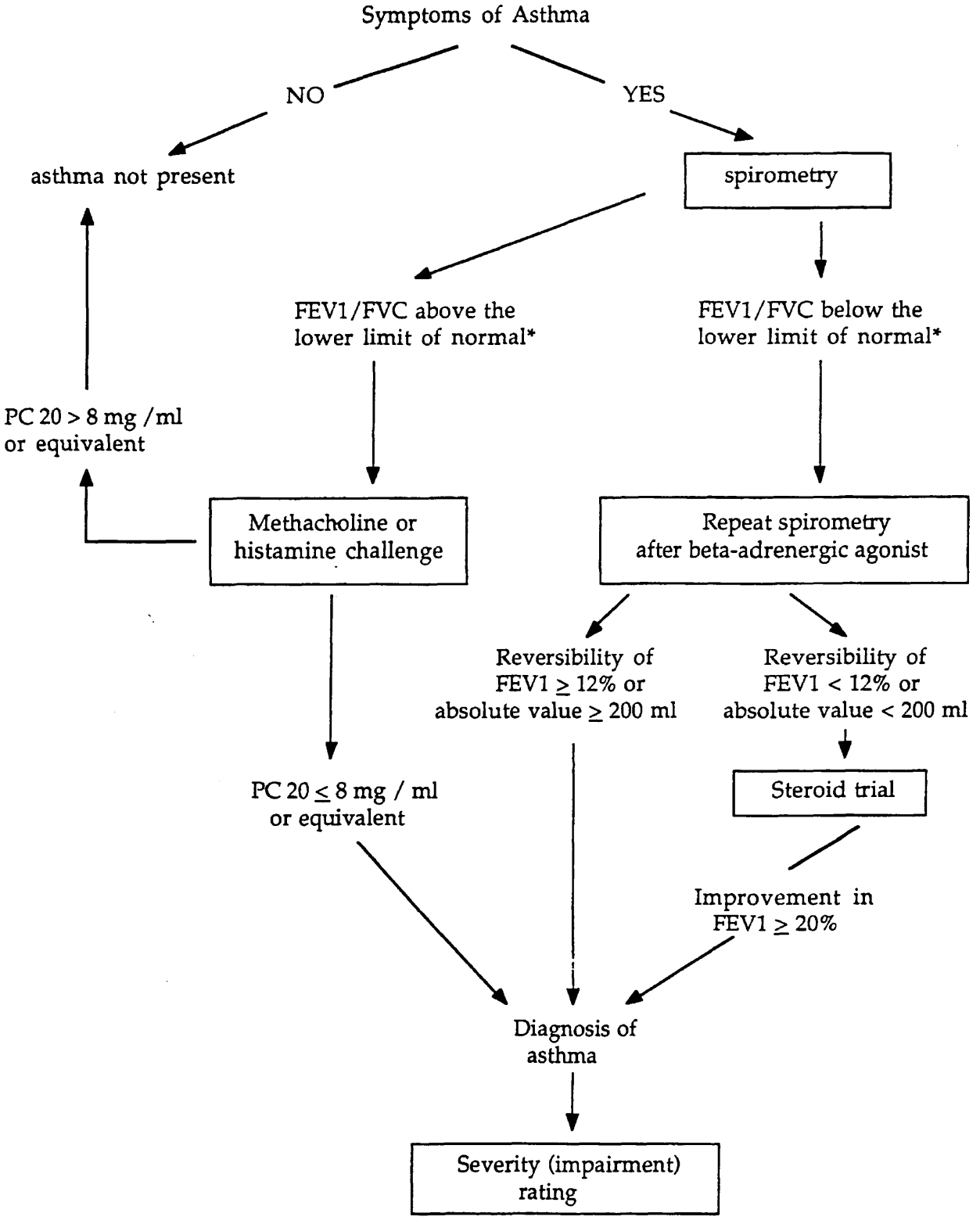
2. Do symptoms develop within minutes of specific activities or exposure at work?

3. Do delayed symptoms occur several hours after exposures or during the evenings of workdays?

4. Do symptoms occur less frequently or not at all on days away from work and on vacations?

5. Do symptoms occur more frequently on returning to work?

Appendix 2: Diagnosis of Asthma




*Lower limit of normal = below the lowest 5% of the reference population

NOTE: Authority cited: Section 139(e)(8), Labor Code. Reference: Section 139(e)(8), Labor Code.

HISTORY

1. New section filed 9–18–95; operative 10–18–95 (Register 95, No. 38).
2. Change without regulatory effect amending section heading and section filed 9–25–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 39).
3. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
4. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

## § 73. Treatment Guideline for Contact Dermatitis.

The method of treating contact dermatitis shall be as set forth below in the "Treatment Guideline for Contact Dermatitis" as adopted by the Industrial Medical Council on July 20, 1995.

TREATMENT GUIDELINE FOR CONTACT DERMATITIS

Contact dermatitis

Contact dermatitis is a common problem among workers and constitutes approximately 5.7 million physician visits per year. All age groups are affected, and there is a slight female predominance as reflected in patients seen for diagnostic patch testing.

The complex nature of the chemical environment (natural and synthetic) in which we live brings the skin into contact with many potential exposures which may or may not pose a hazard, depending on individual susceptibility.

There are more than 100,000 chemicals in the environment today. Almost any substance can be an irritant, depending on the exposure circumstances. Further, over 2,800 substances have been alleged to be contact allergens. The potential for these substances to cause contact dermatitis varies greatly, and thus the severity of the dermatitis ranges from a mild, short–lived condition to a severe, persistent, job–threatening and sometimes life–threatening disease.

Contact dermatitis is an altered state of skin reactivity induced by exposure to an external agent. Substances which produce this condition after single or multiple exposures may be irritant or allergic in nature and will often present as an inflammatory process. Direct tissue damage results from contact with irritants. Following contact with strong irritants the reaction is immediate with blistering and pain, resembling a burn. From contact with weak irritants, the reaction develops more slowly, over several days or weeks, with redness, pain and/or itching, and scaling. Tissue damage by allergic substances, however, is mediated through immunologic mechanisms; the reaction consists of redness, marked itching, slight thickening of the skin and/or small vesicles at the site(s) of contact. The generic term for both of these conditions is contact dermatitis. Tissue damage by allergic substances is mediated through immunologic mechanisms. The most common clinical expression of this induced inflammation is dermatitis (eczema).

CAUTION: Exogenous dermatoses may morphologically and histologically mimic endogenous dermatoses, and vice versa, and may co–exist. Before considering a job change, or if chronicity is involved (more than 12 weeks), appropriate consultation is indicated.

Scope of the guideline: This guideline deals with the assessment and treatment of contact dermatitis in working–age adults. Another contact elicited phenomenon, the contact urticaria syndrome, which in its immunologic form, has produced fatalities, is not discussed here.

A physician may vary from these rules if in the judgment of the physician, variance is warranted to meet the health care needs of the patient and that variance remains within the standards of practice generally accepted by the health care community, and the physician documents the need for the variance in the evaluation report or the medical treatment record in the manner that is generally accepted by the health care community.

Not every medical situation can be addressed in these regulations and medical standards change constantly. The documentation required of the physician is necessary to monitor and explain the use of variances.

I. Initial Assessment

A. Purpose

Accurate diagnosis is the key to proper management of contact dermatitis. If the agent(s) causing the dermatitis can be found and successfully avoided, recovery can be anticipated; but if contact continues, the dermatitis may become chronic, disabling, and a serious threat to continued work and the activities of daily living. After prolonged and repeated episodes of dermatitis, a small number of individuals may not fully recover, even with adequate medical care and following avoidance of its causes.

B. Appropriate assessment methods

1. History may include:

a. General medical status

b. Onset

1) Location

2) Symptoms — itching, burning, sting

3) Description — redness, blisters, scales, urtication (welts), dryness, rash

4) Home remedies used, including over–the–counter preparations.

c. Progression

1) Relation between exposure and time interval of dermatitis

2) Relation to home and recreation

3) Relation to specific work activity

4) Relation to activity — sweating, friction, pressure, heat, cold, etc.

5) Relation to sun/air exposure, season, and time of day

d. Remissions

1) Relation to non–work related weekends and/or vacations

2) Response to treatment and rapidity of recurrence after discontinuing medication

3) Relation to stress and/or anxiety

4) Relation to water exposure

e. Occupational history

1) Exact nature of work

2) Duration of present activity

3) Others similarly affected

4) Changes in procedure or chemical exposure

5) Protective measures — type and effectiveness

6) Related symptomatology — burning eyes, sneezing, wheezing, asthma, and anaphylaxis

7) Cleansing agents — type and frequency of use

8) Hand washing frequency and agents used; protective creams — type and use

9) Second job

10) Review of Material Safety Data Sheets in relation to patient's job

11) Moisturizers and over the counter topicals

12) Other factors

f. Other exposure

1) Hobbies and non–work activities

a) Gardening, house plants, lawn care, and other outdoor activities (e.g., poison ivy, oak, and sumac, chrysanthemums, primula, Peruvian lily)

b) Knitting, sewing, macrame

c) Painting, ceramics, jewelry

d) Cooking, baking

e) Wood working, carpentry, gluing

f) Auto, motorcycle, truck repair

g) Photography and photographic developing

h) Sports

i) Other

2) Animals and substances on their skin or fur

a) Dogs and cats

b) Birds and caged animals

c) Farm animals, horses

d) Other

3) Cosmetics, fragrances, and personal care products

a) Soaps and detergents

b) Shampoos and other scalp/hair products

c) Creams and lotions
d) Perfumes, colognes, deodorants
e) Nail polishes, artificial nails, and nail/cuticle products
f) Consort or other interpersonal contact/products
g) Other
4) Household activities and products
a) Dishwashing products
b) Laundry detergents
c) Furniture waxes, polishes, and dusting agents
d) Bathroom cleaning agents
e) Floor care products
f) Use of gloves (type and frequency)
g) Other
g. Family history
1) Atopic background — nature, prevalence and severity including relation to eczema
2) Ichthyosis, psoriasis, and hand eczema or other significant skin disorder
3) Family members with contact dermatitis
a) Relationship
b) Age of onset
c) Type and severity of problems
d) Results of therapy and/or testing procedures
e) Other
h. Past medical history
1) History of contact dermatitis — nature, severity, and causative agent(s), if known
2) Previous treatment
a) At onset
b) Self treatment — over the counter treatments — relation to dermatitis
c) By other physicians
3) Medications — topical and systemic — past and present — relation to dermatitis as well as medication allergy
4) Other
2. Physical examination may include:
a. Location
1) Symmetry
2) Involved vs. uninvolved skin
a) Demarcation—sharp or unclear
b) Evidence of protection by clothing
c) Distribution suggestive of photo or air-borne pattern exposure (e.g., exposed or uncovered skin areas)
b. Lesion type
1) Acute
a) Dermatitis (eczema)
b) Vesicular/bullous
c) Urticarial
d) Excoriations
e) Crusts
2) Chronic
a) Lichenification
b) Pigmentary changes
c) Atrophy
d) Scarring
e) Loss of hair
c. Other
3. The patch test

The patch test is the standardized diagnostic procedure of choice for allergic contact dermatitis. In general, practitioners who do such patch testing should adhere to the following guidelines when performing patch tests. It should be used only by primary care physicians with previous knowledge, training and skill in the application and interpretation of such testing. In the vast majority of cases, patients who require patch testing should be referred to a dermatologist or allergist who includes patch testing in his/her practice.

a. Standardized test kits containing a number of allergens are available. In testing with substances brought from work, appropriate dilutions must be used to avoid irritant reactions which can be very severe. In general, testing with raw substances from the workplace should be done by a dermatologist or allergist experienced in patch testing.

b. The most widely used patch test material consists of strips of paper tape onto which are fixed 8 mm diameter aluminum discs. A small amount of allergen is placed within these discs, discs, covering slightly more than one-half the diameter of the disc providing a dose approximately 17 ul.

c. Apply the patch to the upper or mid back, which must be free of dermatitis and devoid of hair. If shaving is necessary, it should be done only with an electric razor.

d. Leave the patch in place and keep dry for two days (48 hours) before removing unless symptoms of severe reaction occur.

e. Read tests:

1) The same day that patches are removed from the skin, allowing 20–30 minutes for erythema to resolve before preliminary interpretation.

2) One additional reading at 72 or 96 hours, and occasionally at one week. Reading solely at 48 hours will miss up to 35% of positive reactions.

3) If two readings are impossible, a single reading three or four days (72–96 hours) after patches are initially applied.

f. Grade test reactions according to intensity (International Contact Dermatitis Research Group Scale): [Color plates available]

1) 0 = no reaction.
2) ?(+ or – reaction) = weak erythema only.
3) 1+ = erythema with edema.
4) 2+ = erythema and papules. Tiny vesicles are present over the surface.
5) 3+ = vesicles or bullae.

g. Interpret reactions cautiously:

1) 0 = no evidence of contact allergy.
2) ? = doubtful existence of contact allergy.
3) 1+ = possible contact allergy. (1+ is a common intensity of false positive reactions).
4) 2+ and 3+ = probably contact allergy.
5) If several questionable and 1+ reactions are present along with strong 2+ or 3+ reactions, the weaker reactions may mean that the "excited skin syndrome" is present, the weak reaction representing only irritation.

4. Additional tests of occasional value

a. Skin biopsy to differentiate from other diseases.

b. Open application of a suspected allergenic product to the antecubital fossa twice daily for up to one week (the PUT, Provocative Use Test or ROAT, repeat open application test). This is applicable to leave-on products intended for use on the skin, not wash-off products.

c. Prick or scratch test in the evaluation of contact urticaria. Emergency resuscitation equipment should be available. Contact urticaria should first be evaluated with an open test on sites adjacent to active dermatitis.

d. Chemical analysis of environmental materials to determine if they contain a substance to which the patient is patch-test positive. The most commonly employed of these is the dimethylglyoxime test for nickel.

e. Potassium hydroxide (KOH) preparation, fungal and bacterial cultures and appropriate laboratory examinations as needed.

C. Inappropriate initial assessment methods

1. Occlusive patch test with irritant concentrations of material or material where the irritant concentration is unknown.

2. A specific IgE (RAST) test is not helpful in the diagnosis of contact dermatitis (with the exception of contact urticaria when prick or scratch tests may be hazardous).

3. Sublingual allergen application with vital sign monitoring as an indicator of adverse reactions.

D. Evolving diagnostic tests

In vitro lymphocyte stimulation tests, migration inhibition factor, and other laboratory tests of lymphokine production remain investigational

tools which at present are insufficiently standardized to allow clinical application.

II. Initial Treatment

A. Purpose

The purpose of initial treatment is to prevent further exposure to the causative agent(s) and control itching and/or edema.

B. Appropriate initial treatment methods

1. Topical treatment

Topical treatment alone may be indicated for mild cases of contact dermatitis, limited site of involvement, acute contact dermatitis when the offending agent has been removed, or chronic contact dermatitis with limited symptoms.

Topical therapy most commonly used includes but is not limited to:

a. Cool compresses with saline, water, milk, aluminum subacetate, or other agents for acute, blistering dermatitis

b. Shake lotions, such as calamine

c. Topical corticosteroid cream, ointment, lotion, gel, or spray

d. Colloidal oatmeal baths

e. Antibiotic treatment, if required, should be systemic only (Many antibiotic creams and ointments are sensitizing.)

f. Coal tar in low concentration (in chronic eruptions)

g. Emollients, lubricants, moisturizers (in chronic eruptions) and for prevention of irritation

h. Non-alkaline cleansers instead of soap

2. Systemic treatment

Systemic treatment may be indicated for control of itching and/or edema even in cases of limited extent. Systemic treatment may also be indicated for moderate to severe acute and/or chronic contact dermatitis.

Systemic therapy most commonly used includes but is not limited to:

a. Antihistamine — sedative types for nighttime sedation; non-sedating types for daytime use.

b. Corticosteroids, oral or intramuscular (Intravenous corticosteroids may be useful in severe acute cases)

c. Antibiotics, oral or parenteral (when secondary infection may be present)

d. Other anti-inflammatory or immunologic agents

3. Other

a. Ultraviolet B radiation (used only for chronic, resistant dermatitis, with treatment supervised by a dermatologist)

b. Psoralen (topical or oral) and ultraviolet A radiation, supervised only by a dermatologist

c. Mechanical protection against allergens and irritants (e.g., gloves, protective clothing, protective barrier creams)

d. Removal or avoidance of causal allergens and/or irritants

4. Education

Patient education about the nature of the dermatitis, triggering allergen or irritant factors, and suggestions for avoidance or substitution of these factors in the patient's environment may be helpful in management. Discussion should include proper selection and wearing of gloves and other protective clothing, personal cleanliness, use of hand creams, avoidance of home irritants, especially soaps, shampoos, solvents, etc.

III. Secondary Assessment (Reassessment at One to Three Months)

A. Purpose

It is critical to obtain specialized consultation and possibly a complete diagnostic patch testing and possibly immediate type testing before considering a worker as being unfit for work for dermatologic reasons. For a simple case of irritant contact dermatitis, if there is no improvement after 2–3 weeks of treatment, and especially if the condition is becoming worse, referral to a dermatologist should be made. Referral should be made immediately, however, if there is uncertainty regarding the diagnosis.

B. Appropriate secondary assessment methods

In unclear diagnoses, other lab tests including KOH preparation, microbial cultures, and biopsy should be considered.

IV. Secondary Treatment

A. Purpose

In unusual cases, specialized nonspecific therapies may be helpful. Consultation should be sought before initiating this.

B. Appropriate secondary treatment methods

This includes localized or systemic PUVA (Psoralen UVA).

V. Prevention

A. Purpose

Minimizing exposure to allergens is essential.

B. Appropriate preventive measures

1. Appropriate engineering steps to enclose the chemical and/or physical exposure

2. Appropriate hygiene including:

a. Change of clothing

b. Protective clothing

c. Appropriate gloves

3. Appropriate dermatotoxicologic consultation to identify an alternative process or chemical to substitute for the agent causing a documented allergic contact dermatitis.

4. Appropriate skin care with the least irritating and sensitizing cleansing agents and moisturizers

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NOTE: Authority cited: Section 139(e)(8), Labor Code. Reference: Section 139(e)(8), Labor Code.

HISTORY

1. New section filed 9–18–95; operative 10–18–95 (Register 95, No. 38).
2. Change without regulatory effect amending section heading and section filed 9–25–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 39).
3. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
4. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

## § 74. Treatment Guideline for Post-Traumatic Stress Disorder.

The method for treating post-traumatic stress disorder shall be as set forth below in the "Treatment Guideline for Post-Traumatic Stress Dis-

order" as adopted by the Industrial Medical Council on December 17, 1996.

TREATMENT GUIDELINE FOR POST-TRAUMATIC STRESS DISORDER

I. Introduction:

The Industrial Medical Council and supporting advisory committees were established in 1989 as part of workers' compensation reform. The Psychiatric Advisory Committee followed a legislative mandate to revise the disability evaluation protocols for psychiatric injury which were accepted into law by the Office of Administrative Law on December 7, 1993. The legislature also mandated the IMC to develop guidelines for common industrial injuries.

Violent encounters and exposure to life threatening events are common occurrences in the workers' compensation system. According to the Bureau of Labor Statistics for the calendar year 1992, 1,004 homicides took place at the work site and 22, 400 attacks occurred in the national workforce. The IMC and the Psychiatric Advisory Committee have thus selected post-traumatic stress disorder (PTSD) as the focus for establishment of treatment guidelines.

The California legislature made subsequent changes to the workers' compensation system including a higher threshold of compensability for psychiatric injuries. For injuries that occur after July 17, 1993, an injured worker must prove that the "actual events of employment" were the "predominant cause" (at least 51%) among all of the combined causes of the psychiatric injury.

However, if the psychiatric injury results from a violent act, or from direct exposure to a significant violent act, the actual events of employment must have been a "substantial cause" (at least 35%) of the injury (Lab. Code § 3208.3).

The Psychiatric Advisory Committee, composed of psychiatrists and psychologists from different geographic locations in California, developed these guidelines following committee deliberations, a review of the clinical literature of PATS, and input from national experts.

Scope of this guideline: This guideline does not deal with legal issue of causation or work-relatedness. Treatment guidelines are designed to assist providers by providing an analytical framework for the evaluation and treatment of the more common problems of injured workers. The guidelines are intended to assure appropriate and necessary care for injured workers diagnosed in these types of industrial conditions. Due to the many factors which must be considered when providing quality care, health providers shall not be expected to always provide care within the stated guidelines. Treatment authorization, or payment for treatment, shall not be denied based solely on a health care provider's failure to adhere to the IMC guideline. The guidelines are not intended to be the basis for the imposition of civil liability or professional sanctions. They are not intended to either replace a treating provider's clinical judgment or to establish a protocol for all injured workers with a particular condition. It is understood that some injured workers will not fit the clinical conditions contemplated by a guideline.

All health care providers acting within the scope of their practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician, shall be allowed to bill and be reimbursed in accordance with the Official Medical Fee Schedule.

A provider may vary from these guidelines, if in his or her judgment, variance is warranted to meet the health care needs of the injured worker and that variance remains within the standards of practice generally accepted by the health care community, and the provider documents the need for the variance in the evaluation report or the medical treatment record in the manner that is generally accepted by the health care community.

Not every medical situation can be addressed in these regulations and medical standards change constantly. The documentation required of the physician is necessary to monitor and explain the use of variances.

The physician may wish to advise the parties of the availability of the Cal/OSHA guidelines for workplace security from the Division of Occupational Safety and Health.

II. Background on the Concept of Post-Traumatic Stress Disorder (PTSD):

The diagnosis of post-traumatic stress disorder was first established in the Diagnostic & Statistical Manual, 3rd Edition (DSM-III) by the American Psychiatric Association in 1980. The earlier DSM-I (1952) listed a diagnostic category entitled stressors resulted in a state of fearfulness. More recently DSM-IV (1994) has added the category called Acute Stress Disorder for individuals who experience a brief episode of symptoms that resemble those that occur in PTSD following exposure to an extreme stressor.

The medical literature details the phenomenon of post-traumatic stress disorder dating back well before this century. DaCosta published a paper in the "*American Journal of Medical Science*" (1871) regarding "irritable heart" found in Civil War soldiers who complained of chest pain, palpitations and dizziness subsequent to exposure to battle scenes. "Shell shock" is a concept that came forth in the medical literature that relates to the description of front line soldiers' emotional states during World War I. In World War II a number of papers were published concerning the concept of "traumatic neurosis" again addressing the emotional response on the part of soldiers to witnessing and experiencing serious trauma. Over the past two decades, numerous publications have described similar post-traumatic stress reactions among civilians exposed to catastrophic violence, disaster and traumatic injury. This literature has also documented that the witnessing of life threat, injury or traumatic death to another may result in the full spectrum of post-traumatic symptoms.

The anxious response in patients diagnosed as having PTSD may well relate to increased catecholamine excretion. Studies of Vietnam veterans have found increased levels of noradrenergic metabolites compared to the normal population. Psychological theories point toward the breakdown of the individual's normal defenses such as the use of denial in coping with anxiety related to one's own mortality. Mardi Horowitz (1986) described several stages that patients experience in treatment for PTSD including the traumatic event, outcry, denial, intrusive symptoms, working through and completion. Research involving psychological and biological factors is consistent with PTSD as a separate and distinct disorder from patients with a clinical depressions.

It should be noted that not all those exposed to serious trauma develop symptoms of PTSD. Not all those diagnosed with PTSD go on to become disabled. Symptomatology should not be equated with functional impairment. The lifetime prevalence of PTSD is somewhere between 1.3 to 9% of the general population (Breslau, 1991) and 15% in psychiatric inpatients (Saxe, 1993). The majority of victims of the Buffalo Creek Flood and the Coconut Grove Fire were noted to have post-traumatic symptomatology. Fifteen percent of Vietnam Theater veterans twenty years after the war were diagnosed with PTSD according to the National Vietnam Veterans Readjustment Study (1990). Thus, the diagnosis is by no means uncommon. Studies to date indicate that the severity of exposure to direct life-threat and the witnessing of mutilating injury or death is strongly positively associated with severity of post-traumatic stress reaction. PTSD varies with type, intensity and duration of trauma.

III. Diagnosis:

Post-traumatic stress disorder and acute stress disorder fall within the anxiety disorders category according to the current Diagnostic and Statistical Manual (DSM-IV).[1] Certain criteria must be met for the diagnosis of PTSD to be made. It is essential that the individual experience, witness or be confronted by an event(s) that involve actual or threatened death, serious injury or threat to the physical integrity of oneself or others. The individual must respond by experiencing intense fear, helplessness or horror. There are three symptom categories of PTSD: reexperiencing, avoidance and arousal. The individual goes on to reexperience the event through such things as intrusive recollections and disturbing

dreams. Prominent symptoms include avoidance and numbing. Increased arousal is manifest through disturbance of sleep, hypervigilance, exaggerated startle responses and other symptoms. For acute stress disorder the disturbance lasts at least two days and for a maximum of four weeks whereas for PTSD the diagnosis can be made where symptoms are present for more than one month. The disorder causes distress or impairment in social, occupational or other areas of functioning. If the duration of symptoms is less than three months the condition is deemed acute. If three months or longer, then the descriptor of chronic is appropriate. Delayed onset PTSD occurs when symptoms make their appearance six months or longer after the recognizable stressor.

Examples of traumatic exposures provided in DSM–IV include but are not limited to exposure to combat, violent personal assault, kidnapping, hostage situations, terrorist attacks, torture, concentration camp incarceration, disaster situations, severe automobile accidents or diagnosis with a life–threatening illness. It should be noted that the stressors can be sudden, circumscribed and singular or they may be cumulative and repetitive. Either an individual can be responding to a single hold–up or a series of bank robberies, for example. Natural as well as man–made and intentional trauma can result in features of PTSD. Guilt amongst survivors of serious trauma situations may be a predominant theme. A pre–existing psychiatric disorder or a history of significant trauma, whether related to the current event or not, has been associated with risk of a more severe reaction to a current traumatic exposure.

There is some debate about the extent to which PTSD symptoms overlap with those of depression, substance abuse and other anxiety disorders, which commonly occur with it. There is also some controversy about the type of traumatic events and required levels of intensity that qualify for meeting the diagnostic criteria. The change in the stressor criterion from DSM–III–R to DSM–IV was prompted by the recognition that many extremely traumatic experiences are common enough among the general population not to be deemed "outside the range of usual human experience." The stressor criterion now includes meeting criteria for both objective features, e.g., life–threat or witnessing injury, and subjective features, e.g. horror, terror, intense fear or helplessness. Whereas the inclusion of subjective reactions may appear to some clinicians to broaden the potential range of events that may qualify for the diagnosis, the objective features do not differ from those mentioned in DSM–III–R.

Some clinicians may use diagnostic terms such as a typical PTSD or diagnose PTSD when only secondary symptomatic criteria are met without the initial stressor criteria. Some clinicians make reference to a psychologically "toxic work environment" as sufficient for the diagnosis for PTSD. There are also instances in which corroboration cannot be consistent with malingered or factitious presentations. Where all of the criteria are not met for PTSD or acute stress disorder, the differential diagnosis should include other considerations such as an adjustment disorder, other anxiety disorders, mood disorders, personality disorders, and even psychotic decompensation with this listing not being all–inclusive.

In order to make a correct psychiatric diagnosis treating and evaluating clinicians need to take a thorough history, review all appropriate medical and administrative records, and consider other sources of corroborating data. In making an assessment of whether a patient meets the criteria for PTSD, inquiry should be made about the objective features of the referent traumatic event. The patient's subjective experience should be ascertained in such detail as to determine the patient's appraisal of the threat(s) and severity of subjective reactions. Just as in the assessment of other psychiatric disability situations, there is an appropriate role for psychometric testing that can add additional data concerning the veracity of the applicant's reporting, the severity of symptomatology experienced and the style of coping for that individual.

IV. Treatment Considerations:

Most clinicians and researchers agree that early intervention is called for in cases of acute stress disorder and in cases of post–traumatic stress disorder when later identified. Critical incident stress debriefing at times can be brought about at the worksite, allowing employees to discuss their joint experience of a workplace trauma such as a bank robbery. This type of group intervention can provide psychoeducation and reassurance about the range of normal expected reactions to serious traumatic situations. It also gives clinicians the opportunity to suggest ways of coping with secondary stresses, traumatic reminders and losses. It must be kept in mind that a group of employees may have a wide range of exposures to the same incident. For those employees with the most severe levels exposure, critical incident debriefing alone is likely to be insufficient. In the aftermath, individuals with more serious symptoms or those at greater risk need to be identified and provided with further symptomatic assessment and intervention.

A. There are different models of *psychotherapy* for PTSD that are appropriate. Some take a supportive approach that is consoling. Others use a group approach allowing patients to develop a shared experience. Some clinicians use short–term individual treatment such as that developed by Horowitz and Marmar at UC San Francisco, or short–term group psychotherapy. Additional approaches involve a more long–term working through of the trauma. Recovery from PTSD may have a phasic course, in part, due to expected traumatic reminders such as physical rehabilitation, criminal proceedings, return to the worksite where violence or disaster occurred, and anniversary reactions, as well as unexpected reminders. Short–term psychotherapy, therefore, may need augmentation by periodic follow–up brief psychotherapy sessions in preparation for, during and after such occasions. Treatment should be targeted and focused on symptom removal rather than on uncovering pre–existing psychopathology and addressing personality change.

Cognitive behavioral therapy employing exposure–related techniques to address painful memories of the original experience can be very effective in reducing the fear that often times accompanies the PTSD syndrome. Cognitive approaches may also be used to restructure the meaning attributed to the experience. These techniques can utilize the therapeutic assignments outside the office. In vivo exposure at the work site following discussion in the therapy setting can also be a powerful adjunct to treatment. More general behavioral interventions can also be useful, for example, the use of relaxation techniques to reduce reactivity to trauma–related cues or reminders, desensitization for phobic symptoms, and sleep induction.

B. *Psychotropic medication* is a common component of treatment. Anti–anxiety medication, especially for acute stress disorder, and tricyclic antidepressants have been shown to assist with sleep induction and can suppress the REM component of sleep in which disturbing dreams can come forth. Imipramine can reduce intrusive symptomatology through action on noradrogernic receptor sites in the brain. Amitriptyline and selective serotonin re–uptake inhibitors (SSRI's) such as fluoxetine can reduce numbing and hyperarousal through serotonergic sites. The SSRI's tend to be well tolerated. There is also a rationale for other types of antidepressants such as the MAO inhibitors, mood stabilizing agents such as lithium and valproic acid, adrenergic blockers such as propanolol and clonidine, antipsychotic agents for agitation and paranoia, as well as other psychotropics depending on the severity of symptoms and their duration.

The Advisory Committee recommends treatment be placed into three categories for establishing treatment based upon DSM–IV criteria.

Certain general treatment principles apply. Early clinical intervention soon after the identified workplace trauma can reduce morbidity and disability. An increased frequency in sessions beyond weekly on a short term basis can be appropriate, particularly, early in treatment. Treatment may be appropriate and necessary that exceeds the following guidelines when complicating factors influencing the frequency and duration of treatment are present and documented. There are cases where maintenance treatment may be necessary, especially utilizing supportive psychotherapy and psychopharmacologic approaches for individuals who have experienced extreme trauma and/or present with ongoing symptoms that justify such measures. Psychopharmacologic management visits can be separate from the psychotherapeutic sessions and should not reduce the total number of psychotherapy sessions made available to PTSD patients.

1) Acute Stress Disorder. This condition is present when symptoms have a duration of up to one month subsequent to the traumatic event. The treatment should involve a brief psychoeducational approach lasting one to eight psychotherapy sessions. Positive outcome expectations should be fostered. The patient should be assured that his/her responses are a normal reaction and that they usually disappear in a short time. The use of illicit substances or alcohol as a means of coping should be discouraged. Psychotropic medication is generally restricted to the occasional use of anxiolytics, antidepressants, or hypnotics to assist sleep. The major goals of this treatment approach are normalization, positive expectation, catharsis and desensitization.

2) Acute PTSD. The duration of symptoms is from one to three months subsequent to the industrial trauma. Typically for this type of case where the individual responds to a recognizable stressor, short-term psychotherapeutic treatment, which may be accompanied by the use of medication, is provided for approximately 12 to 16 psychotherapy sessions.

3) Chronic or Delayed PTSD. (The committee suggests that this category be considered for cases of complicated or protracted PTSD.) The duration of symptoms is beyond a period of three months following the trauma. Persistent and significant symptomatology may continue in certain individuals who have received short-term treatment. Complicating factors may include the nature of the initial stressor, prior psychiatric treatment or prior history of trauma/abuse. In such instances treatment beyond the short-term intervention model is appropriate and necessary. Treatment may require 35 to 55 psychotherapy sessions in such instances with justification by the treating clinician. (More frequent therapy and the ongoing use of medication may be warranted.) There are cases where additional treatment may be necessary beyond a period of one year. When treatment is to extend beyond a period of one year, justification by the treating clinician is warranted. Reevaluations by non-treating clinicians at periodic intervals to address the efficacy of treatment can be useful. An opinion from a psychiatrist or psychologist is necessary to amend or discontinue treatment. That opinion must be based upon medical evidence in the case being reviewed.

Factors influencing the frequency and duration of treatment in complicated PTSD. Risk factors which may complicate treatment and the course of the clinical presentation include: a childhood history of trauma, poor social supports, a history of alcohol and drug abuse, lasting physical injury, and disruption of marital and family functioning. As noted above, a history of prior psychiatric treatment can complicate the treatment for the more recent traumatic event. Furthermore, a co-morbid diagnosis with an additional psychiatric condition such as a major depression or a psychotic disorder can add to the complexity and prolong the course of treatment. Personality disorders can also result in resistance to treatment requiring more skill on the part of the treating clinician and at times more treatment resources. Some of the types of maladaptive traits that are intensified by traumatic exposure include paranoia, dependency and avoidance. While treatment for a pre-existing personality disorder or other pre-existing psychiatric condition may not be caused by the traumatic event, complicating maladaptive traits or symptoms may need to be recognized and treated to the extent necessary to provide maximum PTSD treatment efficacy. The influence of legal and administrative factors is significant for injured workers within the workers' compensation system. Symptom prolongation can come about as the result of an inability to resolve the applicant's claim, thus drawing out the need for supportive psychotherapy or counseling. Symptom exacerbation can also occur as a result of repeated examinations, depositions, and court testimony, at times related to other legal matters such as criminal proceedings. In extreme cases patients may present with concomitant syndromes such as major depression which can require inpatient treatment. While acknowledging complicating factors that can prolong treatment and disability, clinicians should be mindful for the potential for secondary gain. Reducing symptomatology, improving functional ability and returning the injured worker to the work force should be the achievable goal of treatment in most cases.

V. Clinical Interventions/Recommendations Beyond Treatment:

While not under the rubric of clinical treatment, other types of interventions can be extremely helpful in assisting the employee to return to a more functional status and ultimately to some type of employment whether with the employer of record or at an alternative worksite. In some cases of PTSD, treating or clinicians will issue recommendations for measures in addition to treatment. These include recommendations for accommodations at the worksite. For example, a bank teller may have to be taken off the teller line following a bank robbery for a period of time. Certain individuals can be accommodated by being placed in positions where they do not handle money subsequent to a robbery event. Clinicians may recommend improving security measures at the worksite. The treating doctor may indicate that it is appropriate for his/her patient to take a self-defense class as a means of empowering the individual in addition to teaching the person how to protect himself or herself in a potential similar situation in the future. Also during the treatment phase a treating doctor may collaborate with the vocational counselor about the worker taking incremental steps toward venturing out into the public, taking on the challenge of retraining or returning to the work site. Where appropriate the employer can facilitate the early return to work by the incremental resumption of duties, e. g. part time employment . Success in regard to the goals of returning the employee to work and increasing functionality can actually reduce the duration of treatment and at times the level of permanent disability.

[1] Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, D.C., American Psychiatric Press (Task Force on DSM-IV, A. Francis, chairperson), 1994.

NOTE: Authority cited: Section 139(e)(8), Labor Code. Reference: Section 139 and 139.2, Labor Code.

HISTORY

1. New section filed 1-24-97; operative 2-23-97 (Register 97, No. 4).
2. Change without regulatory effect amending section filed 7-12-2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

## § 75. Treatment Guidelines for Shoulder Problems.

The method of treating industrial injury to the shoulder shall be as set forth below in the "Treatment Guideline for Shoulder Problems" as adopted by the Industrial Medical Council on May 15, 1997.

SHOULDER PROBLEMS

Introduction

Shoulder problems are common among workers. The overall goals of the management of shoulder problems in workers is to identify and correct both environmental and personal factors that may be causing or aggravating the problem, while providing appropriate management of disability so that it leads to a return to productive work.

Scope of the Guideline

This guideline deals with the assessment and treatment of work-related shoulder problems, including tendinitis, bursitis, impingement syndrome, rotator cuff deficits, muscle injuries affecting the shoulder girdle, shoulder instability (including labral damage and acromioclavicular (AC) separation) and pectoral girdle nerve syndrome. Initial assessment to rule out serious shoulder problems is discussed, but definite diagnosis and treatment of serious disorders is beyond the scope of this guideline. This guideline does not deal with issues of legal causation or work-relatedness. Treatment guidelines are designed to assist providers by providing an analytical framework for the evaluation and treatment of the more common problems of injured workers. These guidelines are educational and descriptive of generally accepted parameters for the assessment and treatment of shoulder injuries. The guidelines are intended to assure appropriate and necessary care for injured workers diagnosed with these types of industrial conditions. Due to the many factors which must be considered when providing quality care, health providers shall not be expected to always provide care within the stated guidelines. Treatment authorization, or payment for treatment, shall not be denied based solely

on a health care provider's failure to adhere to the IMC guideline. The guidelines are not intended to be the basis for the imposition of civil liability or professional sanctions. They are not intended to either replace a treating provider's clinical judgment or to establish a protocol for all injured workers with a particular condition. It is understood that some injured workers will not fit the clinical conditions contemplated by a guideline.

Symptom duration is defined as acute (< one month), subacute (one–three months) and chronic (> three months).

For the purpose of this document, a provider is defined as any health care provider acting within the scope of his/her practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician.

All health care providers acting within the scope of their practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician, shall be allowed to bill and be reimbursed in accordance with usual practices.

A provider may vary from these guidelines, if in his or her judgment, variance is warranted to meet the health care needs of the injured worker and that variance remains within the standards of practice generally accepted by the health care community, and the provider documents the need for the variance in the evaluation report or the medical treatment record in the manner that is generally accepted by the health care community.

Not every medical situation can be addressed in these regulations and medical standards change constantly. The documentation required of the provider is necessary to monitor and explain the use of variances.

In all cases, the provider shall document no later than 6 months from the date of injury, whether further treatment is warranted and whether the injured worker has significant subjective and objective evidence of the condition not having plateaued.

1.0 Initial Assessment (First Month)

1.1 Purpose

The purpose of the initial assessment is to differentiate occupational shoulder disorders secondary to chronic fatigue of neck and shoulder muscles from the specific overuse phenomena, such as tendinitis. It should also be noted that pain complaints in the neck, chest, cardiovascular system, liver, gallbladder or upper thoracic spine are frequently referred to the shoulder.

Conditions considered in this guideline include, but are not limited to, the following examples:

Sudden overload of a muscle tendon unit can create ruptures of various muscles about the shoulder. This is a relatively uncommon problem but disabling for varying periods when it occurs. The injury is usually defined within the first several days, largely based on physical examination.

Instability of the shoulder may be associated with weakness and limited function. Specific definition of the problem, with early decision as to whether surgical reconstruction or specific rehabilitation is necessary, will hasten the return to normal function.

The phrase "impingement syndrome" at times may replace less specific diagnoses such as bursitis or tendinitis.

1.2 Appropriate assessment methods

1.2.1 History and physical exam

The history focuses on the nature of the injury, and the duration of the shoulder complaint. The work history may include awkward postures and/or a prolonged duration of similar work postures. Ask about a history of previous or contralateral shoulder problems.

With pain complaint on the part of an individual claiming work injury, clear definition of the source of the injury should be made. Shoulder problems related to impingement syndrome, tendinitis and rotator cuff tears are usually the result of chronic overload over a long period of time yet they may occur on the basis of a single event.

People with impingement syndrome will often complain of pain while sleeping on the affected side and inability to complete simple tasks.

Visual inspection, range of motion, comparing the contralateral side, a manual test for shoulder strength, and palpation for joint tenderness or a possible defect should be performed on all injured workers.

Musculotendinous injuries may be suspected by a history of weakness, joint tenderness and a palpable defect.

Shoulder instability is often quite difficult to diagnose. Posterior subluxation of up to 50% and anterior subluxation of up to 33% may be a normal finding under general anesthesia. The tests to define instability include:

apprehension tests

drawer signs

provocative tests such as the Sulcus sign, which is elicited by pulling downward the arm held at the side and noting the subacromial skin indentation.

The impingement syndrome can be diagnosed by physical examination. Examination will often demonstrate an area of tenderness. This is especially noted when the arm is in 10 degrees of extension and internal rotation. This particular location allows the tuberosities to be palpable. Range of motion may be limited particularly in internal rotation and cross–body adduction. Passive motion through a 60 to 90 degree arc of flexion may be associated with crepitus as well as pain. Active elevation of the arm is usually more uncomfortable than passive elevation.

1.2.2 X–rays

X–rays may be done on the initial medical evaluation if there is a specific history of injury, and/or the examining physician determines that x–rays are clinically necessary. (Mail Survey=4) (Consensus Panel=) [4]

X–rays may suggest a history of instability. Plain x–rays may document an impression fracture in the posterior superior aspect of the humeral head (Hill–Sachs lesion). Stress x–rays may be useful to document occult instability.

In individuals with impingement syndrome, plain x–rays which focus at the anterior acromion may note sclerosis and, in specific views such as the anterior scapula view, an increased "hooking" of the acromion.

1.2.3 Injections with local anesthetic to clarify or differentiate the diagnosis.(M=3) (C=4) [3]

1.3 Inappropriate initial assessment methods

1.3.1 Arthrography

Plain arthrography for the evaluation of shoulder instability is inappropriate. CT/arthrography can be considered. [1]

Plain arthrography may be appropriate for the evaluation of acute rotator cuff tears when the patient cannot undergo MRI. (M=1) (C=) [1]

1.3.2 Arthroscopy

Arthroscopy is not routinely necessary for the detection of instability or rotator cuff status. (M=1)(C=)[1]

1.3.3 Specialized imaging tests

Routine use of specialized imaging tests is not indicated. (M=1) (C=) [1]

Chronic degenerative changes occur in the older age group in high frequency. Findings of degenerative changes on an imaging study may be incidental and not the reason for the injured worker's complaints.

2.0 Initial Treatment

2.1 Purpose

The purpose of the initial treatment is to allow the injured worker to resume activities as soon as possible while not aggravating the shoulder symptoms.

2.2 Appropriate initial treatment methods

2.2.1 Education

Appropriate education includes shoulder anatomy and the role of muscle weakness and fatigue in pain complaints. (M=4) (C=) [4]

2.2.2 Activity and environmental modifications

Ergonomic modifications and changes of position are appropriate if possible and practical. (M=4)(C=)[4]

Various EMG studies have documented a reduced muscle activity with ergonomic modification. Job modifications to avoid work activities

such as overhead manual labor should be considered, especially for workers with repetitive–type injuries

2.2.3 Immobilization

Primary shoulder dislocations, once relocated, should be treated immediately with immobilization for up to three to four weeks. (M=4) (C=4) [4]

2.2.4 Exercise

2.2.4.1 For occupational shoulder disorders, a strengthening and/or stretching program may be appropriate.

2.2.4.2 For individuals with shoulder instability, exercise programs to strengthen the muscles should be undertaken. (M=4) (C=) [4]

Efficacy of various strengthening programs has not been documented by comparative studies except for cases of traumatic and non–traumatic subluxation.

2.2.4.3 For individuals with impingement syndrome, initial treatment should be in the form of isometric and/or resistive exercises (if tolerated by the injured worker), as well as mobilization exercises to the involved shoulder, focusing upon those muscles controlling the rotator cuff. (M=4) [4]

2.2.5 Medications (M=4) (C=) [3]

Anti–inflammatory and pain medication may be indicated for shoulder injuries.

Opioids may be necessary if the pain is refractory to treatment with non–opioid analgesics.(M=3)(C=4)[3]

2.2.6 Physical treatments

Appropriate manual therapies include manipulation,or joint and soft tissue mobilization, supplemented by physical modalities and exercise. (M=4) (C=) [4]

2.2.7 Use of thermal modalities in conjunction with physical treatment may be useful.

2.2.8 Injections

For impingement syndrome, bursitis and tendinitis specific local steroid injections (M=4) (C=4) [4]

2.2.9 Acupuncture (M=4) (C=2) [2]

2.2.10 Surgery

Ruptures of major tendons should have surgical consideration for primary as should a significant tear of the rotator cuff or AC dislocation. (M=4) (C=) [4]

2.2.11 Shoulder girdle trigger point injections for specific indications may be useful, and, if so, should be for a trial of up to 3 sessions. (M=)(C=)[2] 2.3 Inappropriate initial treatments 2.3.1 Surgical treatments for tendinitis, bursitis, acromial clavicular subluxation (M=1) (C=) [1]

2.3.2 Proximal biceps ruptures often need not be repaired surgically. Function is often just as good with or without repair.M=1)(C=)[1]

2.3.3 Total immobilization after 1 week is inappropriate for most shoulder injuries. (M=1) (C=) [1]

2.3.4 Steroids for shoulder instability (M=1) (C=) [1]

2.3.5 Arthroscopic stabilization of the shoulder has not been confirmed to give greater stability than open shoulder stabilization surgery.(M=1)(C=)[1]

2.3.6 Trigger point injections unless a specific rationale can be presented. (M=1) (C=) [1]

2.4 Case management

Management during the first 4 weeks of treatment will be determined by the clinician's evaluation of the injured worker's response to therapy. Generally, re–evaluation of the problem, determination of treatment effectiveness and work status should be performed every 1–2 weeks until return to modified or full work is achieved. At each visit, the initial diagnosis should be confirmed or modified and the treatment plan adjusted if necessary. If symptoms continue to increase despite adequate conservative therapy, or if there is significant disability due to pain, referral to a provider trained and experienced in the evaluation and treatment of occupational disorders is warranted in the initial treatment phase. Once the acute pain is controlled, the treatment should focus on progressive rehabilitative exercises to increase strength and endurance, and activity modification. This approach minimizes the chance of recurrence once normal occupational duties are resumed.

3.0 Secondary Assessment (after first month)

3.1 Purpose

The purpose of reassessment is to determine the reason for delayed recovery in injured workers who have not experienced functional improvement after appropriate initial treatment.

3.2 Appropriate secondary assessment methods (for clinical indications as noted)

3.2.1 Objective testing (strength and range of motion) of status of rehabilitation may be indicated for individuals with findings of impingement syndrome. (M=4) (C=) [4]

3.2.2 Injections with local anesthetic to clarify pain issues (M=4) (C=) [4]

3.2.3 Specialized imaging tests A shoulder arthrogram may be useful when an MRI is inconclusive or contraindicated. (M=4) (C=) [3]

3.2.4 If an arthrogram is contraindicated, an MRI may be appropriate. (M=4) (C=) [4]

3.2.5 Ergonomic evaluation may be indicated if findings suggest that physical work factors may be contributing to delayed recovery or frequent exacerbation of the patient's condition. (M=4) (C=) [4]

3.3 Inappropriate secondary assessment methods

3.3.1 Psychological evaluation (M=1) (C=) [1]

4.0 Secondary Treatment

4.1 Purpose The purpose of secondary treatment is to cure or relieve the effects of the injury of the worker who remains refractory to primary treatment efforts.

4.2 Appropriate secondary treatment methods (for the specific clinical indications as noted)

4.2.1 Progressive active strengthening and stretching programs with documentation of functional progress. (M=4) (C=) [4]

4.2.2 Up to a maximum of three steroid injections into the subacromial space for individuals with the diagnosis of impingement. (M=4) (C=) [4]

4.2.3 Manual medicine techniques Manipulation/mobilization and myofascial release may be appropriate if subjective and objective evidence of improvement can be documented on a monthly basis. (M=4) (C=) [4]

4.2.4 Surgical treatment methods

4.2.4.1 For individuals with objective findings of impingement syndrome on physical examination, subacromial injection, steroid injection, and imaging studies and who have failed conservative treatment including steroid injections and an exercise program, surgery may be appropriate after 3 to 6 months. (M=4) (C=) [4]

4.2.4.2 Recurrent subluxation or dislocation on a traumatic basis is best treated by surgical reconstruction.(M=4)(C=)[4]

4.2.5 Shoulder girdle trigger point injections for specific indications may be useful for a trial of up to 3 sessions (or 6 sessions, if not done in the initial treatment phase). (M=) (C=) [3]

4.3 Inappropriate secondary treatments

4.3.1 Frequent steroid injections (> 2 ) (M=1) (C=) [1]

4.3.2 Surgery for tendinitis (M=1) (C=) [1] 4.3.3 Biofeedback (M=1) (C=) [1]

4.3.4 Pain clinic (M=1) (C=) [1] 4.3.5 Prolonged time off work (M=) (C=1) [1]

4.4 Case management

If the injured worker has not resumed near normal work duties after 8 weeks of full conservative therapy including adherence to a graded exercise program, a referral to a physician trained and experienced in the evaluation and treatment of occupational disorders or an orthopedic surgeon is recommended. Consultation should include a complete evaluation and recommendations for treatment and return to appropriate work. If psychosocial issues are judged to contribute to delayed recovery or heightened disability, it may be appropriate to have a psychiatric evaluation. If the condition becomes chronic or disabling despite full conservative treatment including appropriate medical, rehabilitative, and ergo-

nomic interventions (and surgery if indicated), the injured worker should be evaluated for permanent disability.

5.0 Prevention

5.1 Purpose

The purpose of prevention is to avoid reoccurrence of shoulder pain complaints.

5.2 Appropriate preventive measures

5.2.1 Exercises to maintain/improve strength, range, and endurance. (M=4) (C=) [4]

5.2.2 Ergonomic modifications (M=) (C=) [4]

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Appendix 7.0 Description of IMC Appropriateness Levels

| | Level 4 | Level 3 | Level 2 | Level 1 |
|---|---|---|---|---|
| Good Research Based Evidence | Yes | No | No | No |
| Clinical Evidence | Yes | Yes | Some | No |
| Consensus Of The Health Care Community | Yes | Yes | Partial | No |
| Clinical Utility Of Appropriateness Level For Common Shoulder Problems | Appropriate and recommended | Acceptable or appropriate in most cases | Appropriate in uncommon individual cases. Document the case-specific clinical factors or circumstances which make this procedure reasonable and necessary for this injured worker. | Inappropriate |

NOTE: Authority cited: Section 139(e)(8), Labor Code. Reference: Section 139(e)(8), Labor Code.

HISTORY

1. New section filed 7–16–97; operative 8–15–97 (Register 97, No. 29).
2. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
3. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

## § 76. Treatment Guideline for Knee Problems.

The method of treating industrial injury to the knee shall be as set forth below in the "Treatment Guideline for Knee Problems" as adopted by the Industrial Medical Council on March 20, 1997.

KNEE PROBLEMS

Introduction

Management of knee problems in injured workers includes consideration of environmental and personal factors which may be causing or aggravating the problem, as well as providing treatment that leads to a return to productive work.

Scope of the guideline: This guideline deals with the assessment and treatment of knee problems, including 1) articular surface damage, 2) bone damage, 3) synovial and capsular damage 4) ligament injuries, 5) patellofemoral tracking (chondromalacia), 6) meniscal injuries and 7) loose bodies in the knee. Knee problems can be acute (< 4 weeks), subacute (1 to 3 months), or chronic (> 3 months).

Initial assessment to rule out serious knee problems is discussed, but definite diagnosis and treatment of serious disorders is beyond the scope

of this guideline. This guideline does not deal with issues of legal causation or work–relatedness. Treatment guidelines are designed to assist providers by providing an analytical framework for the evaluation and treatment of the more common problems of injured workers. These guidelines are educational and descriptive of generally accepted parameters for the assessment and treatment of knee injuries. The guidelines are intended to assure appropriate and necessary care for injured workers diagnosed with these types of industrial conditions. Due to the many factors which must be considered when providing quality care, health providers shall not be expected to always provide care within the stated guidelines. Treatment authorization, or payment for treatment, shall not be denied based solely on a health care provider's failure to adhere to the IMC guideline. The guidelines are not intended to be the basis for the imposition of civil liability or professional sanctions. They are not intended to either replace a treating provider's clinical judgment or to establish a protocol for all injured workers with a particular condition. It is understood that some injured workers will not fit the clinical conditions contemplated by a guideline.

For the purpose of this document, a provider is defined as any health care provider acting within the scope of his/her practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician.

All health care providers acting within the scope of their practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician, shall be allowed to bill and be reimbursed in accordance with the Official Medical Fee Schedule.

A provider may vary from these guidelines, if in his or her judgment, variance is warranted to meet the health care needs of the injured worker and that variance remains within the standards of practice generally accepted by the health care community, and the provider documents the need for the variance in the evaluation report or the medical treatment record in the manner that is generally accepted by the health care community.

Not every medical situation can be addressed in these regulations and medical standards change constantly. The documentation required of the provider is necessary to monitor and explain the use of variances.

In all cases, the provider shall document no later than 6 months from the date of injury, whether further treatment is warranted and whether the injured worker has significant subjective and objective evidence of the condition not having reached maximum medical improvement (i.e. Permanent and Stationary status).

1.0 Initial Assessment

1.1 Purpose

The purpose of the initial assessment is to define the structural abnormality, in particular knee stability and intra articular abnormalities. Initial evaluation of an acute knee injury focuses on avoiding missed diagnoses. Early diagnoses of repairable abnormalities will speed return to work.

1.2 Appropriate initial assessment methods

1.2.1 History and physical

The history focuses on defining the nature of the injury, the duration of the knee complaint, and the past history of effusion. A history of previous knee injuries or other workplace injuries is important. Pain in the knee may be from the hip, the back, the thigh or the lower leg.

Clinical diagnosis of knee problems can usually be made on history and physical examination with the help of x–rays.

The presence of hemarthrosis suggests a more serious injury. Aspiration of a tense knee effusion may reduce pain and allow a more appropriate evaluation on physical examination. Injection of a local anesthetic may also be indicated.

The usual complaint of individuals with ligament insufficiencies is 'giving away'. Definition of the problem by physical examination is the first step in appropriate care. Appropriate tests should be used to identify ligamentous incompetence, disruption of a meniscus, articular surface irregularity and other soft tissue injury. Many injuries such as meniscus and ligament damage can be established by physical examination and may not require further tests.

1.2.2 X–rays (Mail Survey =4) (Consensus Panel=) [4]

Appropriate indications for radiography in acute knee injuries include:

Tenderness at the head of fibula

Isolated tenderness of the patella (no other bone tenderness of the knee)

Inability to fully extend the knee

Inability to weight bear both immediately and in the provider's office (four steps regardless of limping)

Tense effusion

Acute direct trauma to the knee

Inability to flex beyond 90 degrees

1.2.3 Diagnostic arthroscopic examination

Arthroscopic examination may be necessary on very rare occasions when clinical evaluation is not diagnostic. (M=4) (C=) [2]

Arthroscopy allows examination of the under surface of the patella, meniscus tears, cruciate ligament status, synovitis, loose bodies, and the status of the tibial and femoral articular surfaces.

1.2.4 Vascular studies

Vascular studies are indicated if the injury is associated with vascular disruption/damage, a secondary vascular complication, or a dislocation of the knee.(M=4) (C=4) [4]

1.3 Inappropriate initial assessment methods

1.3.1 MRI/CT

MRI/CT is not usually appropriate at the initial evaluation or within the first month. (M=1) (C=) [1]

Exceptions include suspected subarticular stress fracture or bone bruise, any evidence of a mass, a tear of the patellar tendon or a locked knee.

1.3.2 Arthrogram

An Arthrogram is not usually appropriate at the initial evaluation or within the first month. (M=1) (C=) [1]

2.0 Initial Treatment

2.1 Purpose

The purpose of the initial treatment is to return the worker to their pre–injury status and to facilitate sustained return to work.

2.2 Appropriate initial treatment methods may include:

2.2.1 Aspiration of a tense, painful effusion. (M=4) (C=) [4]

2.2.2 Ice, compression and elevation of a painful knee. Immobilization of an unstable knee, including functional bracing. (M=4) (C=) [4]

2.2.3 Initial treatment for primary patellofemoral dislocation includes immobilization. (M=4) (C=4) [4]

2.2.4 Medications

2.2.4.1 Anti–inflammatory and non–narcotic analgesic medications (M=4) (C=) [3]

2.2.4.2 Narcotic analgesics are usually not required. (M=1) (C=) [2]

2.2.5 Physical medicine modalities may enhance early rehabilitation (M=4) (C=) [4]

2.2.6 Progressive exercise program (M=4) (C=4) [4]

Progressive exercises should be performed to prevent weakness, stiffness and other forms of deconditioning.

2.2.7 Manual medicine/modalities (M=4) (C=) [4]

2.2.8 Surgery (M=4) (C=) [4]

Surgery may be needed to remove loose bodies or to correct major soft tissue or bony disruption.

2.2.9 Ligament injuries

Immediate repair of anterior cruciate ligaments in many situations is not necessary. (M=1) (C=) [1]

Primary, multiple structural repairs require additional documentation because of a less predictable outcome. (M=1) (C=) [1]

Isolated tears of the medial collateral and/or lateral collateral ligament usually do not require surgical repair. (M=1) (C=) [1]

Although the prognosis is not good, combined repair of cruciate and lateral collateral ligaments may be needed. (M=1) (C=) [1]

2.3 Inappropriate initial treatments

2.3.1 A TENS unit is inappropriate in the initial phase. (M=1) (C=) [1]

2.3.2 Psychotropic medications are seldom needed. (M=1) (C=) [1]

2.4 Case management

Management during the first 4 weeks of treatment will be determined by the clinician's evaluation of the injured worker's response to therapy. Generally, re-evaluation of the problem, determination of treatment effectiveness and work status should be performed every 1–2 weeks until return to modified or full work is achieved. At each visit, the initial diagnosis should be confirmed or modified and the treatment plan adjusted if necessary. If symptoms continue to increase despite adequate conservative therapy, or if there is significant disability due to pain, referral to a provider trained and experienced in the evaluation and treatment of occupational disorders is warranted in the initial treatment phase. Once the acute pain is controlled, the treatment should focus on progressive rehabilitative exercises to increase strength and endurance, and activity modification. This approach minimizes the chance of recurrence once normal occupational duties are resumed.

3.0 Secondary Assessment

3.1 Purpose

The purpose of reassessment is to determine the reason for delayed recovery in patients who have not functionally improved. It is often difficult initially to assess the severity of the damage and/or instability. Therefore, reassess any individual who remains symptomatic after a trial of rehabilitation.

3.2 Appropriate secondary assessment methods, if clinically indicated, include:

3.2.1 Use of mechanical devices to test strength and stability.

Appropriate tests may be performed with initiation of the rehabilitation process and particularly post operatively and may be necessary to be repeated upon conclusion of rehabilitation. (M=4) (C=) [3]

Special equipment which isolates the knee and measures strength may be helpful.

3.2.2 Diagnostic imaging testing may be appropriate if the worker remains symptomatic, the diagnosis elusive and/or surgery is planned. (M=4) (C=) [4]

Testing may include an x-rays, MRI, CT, and arthrogram.

Clinical indications:

Joint instability or obvious ligamentous damage determined by the physical exam that is not responsive to conservative treatment and the decision to do arthroscopy has not yet been made.

Post-traumatic hemarthrosis or persistent effusion (over 4 weeks).

Acute trauma with unexplained persistent pain of over four weeks that is not responsive to conservative treatment and the decision to do arthroscopy has not yet been made.

Findings suggestive of a defect in the alignment of the patella.

Indications previously mentioned under initial evaluation (suspected subarticular stress fracture or bone bruise, any evidence of a mass, or tear of the patellar tendon).

3.2.3 Functional capacity evaluation may be indicated in situations of ligament reconstruction or other major knee surgery. [3]

3.3 Inappropriate secondary assessment methods

3.3.1 EMG unless muscle weakness is thought to be secondary to nerve damage. (M=1) (C=) [1]

3.3.2 Vascular studies are not indicated unless there is associated vascular disruption/damage or a secondary vascular complication. (M=1) (C=) [1]

3.3.3 Bone scan (M=1) (C=) [1]

4.0 Secondary Treatment

4.1 Purpose

The purpose of secondary treatment is to help the injured worker who is slow to recover.

4.2 Appropriate secondary treatment methods (for the specific clinical indications as noted)

4.2.1 Progressive physical exercise program

4.2.1.1 Individuals without full range of motion and strength can benefit from a progressive exercise program. (M=4) (C=) [4]

4.2.1.2 Rehabilitation therapy is important following surgery. (M=4) (C=) [4]

4.2.1.3 Functional bracing for unstable knees under non-surgical care. (M=) (C=4) [4]

4.2.2 Surgery

4.2.2.1 Arthroscopic surgery may be indicated if a clinically significant, surgically correctable abnormality is documented. (M=4) (C=) [4]

4.2.2.2 Reconstruction of ligaments is best done after appropriate rehabilitation to restore range of motion. (M=) (C=4) [4]

4.3 Inappropriate secondary treatments

4.3.1 Surgery

4.3.1.1 Total removal of the meniscus (M=1)(C=) [1]

The meniscus is an important component of knee mechanism. Even a mild degenerative meniscus is more useful than an absent meniscus. Excision of the total meniscus leads to a significant amount of problems. The modern approach is to remove as little as possible and try for repair in the younger individual.

4.3.1.2 Multiple ligament repairs performed at the same time as repairs to the meniscus (M=1) [1]

Multiple ligament repairs performed at the same time meniscus repairs may lead to a stiff joint.

4.3.1.3 Collateral ligament repair for injuries without instability (M=1) (C=) [1]

4.3.2 Prolonged immobilization (M=1) (C=) [1]

4.3.3 Multiple steroid injections into the knee joint (> 3), or into the ligament or tendon is rarely indicated. Direct steroid injections in the ligament or tendons of the knee is rarely indicated. Steroid injections of the bursae of the knee may be indicated. (M=1) (C=) [1]

4.3.4 Routine prescription of pain or sedative medication is not recommended and when prescribed for severe pain, should be limited in duration and quantity. (M=1) (C=) [1]

4.4 Case management

If the injured worker has not resumed near normal work duties after 8 weeks of full conservative therapy including adherence to a graded exercise program, a referral to a physician trained and experienced in the evaluation and treatment of occupational disorders or an orthopedic surgeon is recommended. Consultation should include a complete evaluation and recommendations for treatment and return to appropriate work. If the condition becomes chronic or disabling despite full conservative treatment including appropriate medical, rehabilitative, and ergonomic interventions (and surgery if indicated), the injured worker should be rated for permanent disability. If psychosocial issues are judged to contribute delayed recovery heightened disability, it may be appropriate to have a psychiatric evaluation.

5.0 Prevention

5.1 Purpose

The purpose of preventive measures is to avoid reoccurrence of the knee problems.

5.2 Appropriate preventive measures

5.2.1 Exercises which maintain/improve strength, range, and endurance (M=4) (C=) [4]

5.2.2 Functional bracing for ACL/PCL unstable knees (M=) (C=4) [4]

5.3 Inappropriate preventive measures

5.3.1 Prolonged total immobilization. (M=4) (C=) [1]

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Appendix 7.0 Description of IMC Appropriateness Levels

| | Level 4 | Level 3 | Level 2 | Level 1 |
|---|---|---|---|---|
| Good Research Based Evidence | Yes | No | No | No |
| Clinical Evidence | Yes | Yes | Some | No |
| Consensus Of The Health Care Community | Yes | Yes | Partial | No |
| Clinical Utility Of Appropriateness Level For Common Knee Problems | Appropriate and recommended | Acceptable or appropriate in most cases | Appropriate in uncommon individual cases. Document the case-specific clinical factors or circumstances which make this procedure reasonable and necessary for this injured worker. | Inappropriate |

NOTE: Authority cited: Section 139(e)(8), Labor Code. Reference: Section 139(e)(8), Labor Code.

HISTORY

1. New article 7 (section 76) and section filed 5–13–97; operative 6–12–97 (Register 97, No. 20).
2. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
3. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

## § 76.5. Treatment Guideline for Elbow Problems.

The method of treating industrial injury to the elbow shall be as set forth below in the "Treatment Guideline for Elbow Problems" as adopted by the Industrial Medical Council on May 15, 1997.

ELBOW PROBLEMS

Introduction

Elbow problems are a common musculoskeletal disorder. Acute 'strain' or blunt trauma may precipitate elbow problems such as medial and lateral epicondylitis, bursitis, nerve entrapment, and tendinitis.

Scope of this guideline: This guideline is intended for use in the diagnosis and management of working aged people with a primary complaint of elbow or extensor forearm pain and whose occupational activities put them at risk for elbow problems. The condition of lateral epicondylitis will be used throughout this guideline as an example.

Treatment guidelines are designed to assist providers by providing an analytical framework for the evaluation and treatment of the more common problems of injured workers. These guidelines are educational and descriptive of generally accepted parameters for the assessment and treatment of elbow problems. The guidelines are intended to assure appropriate and necessary care for injured workers diagnosed with these types of industrial conditions. Due to the many factors which must be considered when providing quality care, health providers shall not be expected to always provide care within the stated guidelines. Treatment authorization, or payment for treatment, shall not be denied based solely on a health care provider's failure to adhere to the IMC guideline. The guidelines are not intended to be the basis for the imposition of civil liability or professional sanctions. They are not intended to either replace a treating provider's clinical judgment or to establish a protocol for all injured workers with a particular condition. It is understood that some injured workers will not fit the clinical conditions contemplated by a guideline.

Symptom duration is defined as acute (< one month), subacute (one – three months) and chronic (> three months).

For the purpose of this document, a provider is defined as any health care provider acting within the scope of his/her practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician. This guideline does not address the evaluation and management of chronic elbow problems including chronic pain syndrome.

All health care providers acting within the scope of their practice, including those to whom an injured worker has been referred or whose

treatment has been prescribed by a treating physician, shall be allowed to bill and be reimbursed in accordance with the usual practices.

A provider may vary from these guidelines, if in his or her judgment, variance is warranted to meet the health care needs of the injured worker and that variance remains within the standards of practice generally accepted by the health care community, and the provider documents the need for the variance in the evaluation report or the medical treatment record in the manner that is generally accepted by the health care community.

Not every medical situation can be addressed in these regulations and medical standards change constantly. The documentation required of the provider is necessary to monitor and explain the use of variances.

In all cases, the provider shall document no later than 6 months from the date of injury, whether further treatment is warranted and whether the injured worker has significant subjective and objective evidence of the condition not having plateaued.

1.0 Initial Assessments (First Month)

1.1 Purpose

The purpose of the initial assessment is to establish a specific diagnosis. For the diagnosis of occupational elbow problems, a work–related etiology should be established, and relevant non–occupational home, hobby and sports activities should be ruled out as contributing or causative factors. When considering diagnoses other than those involving the elbow, the provider should refer to the appropriate treatment guideline.

1.2 Appropriate initial assessment methods

1.2.1 History and physical examination

A detailed history addressing all pertinent complaints should be obtained including the characteristics of the pain, its onset and location, radiation, provocative and relieving factors. Hand dominance should be recorded. Any antecedent symptoms, trauma, fall, or new activities should be documented.

Typical symptoms of lateral epicondylitis include pain in the lateral aspect of the elbow with pain or burning radiating to the forearm (and occasionally proximal radiation). There may be loss of grip strength due to forearm pain with hand grip. Pain is usually insidious in onset but may be provoked by an acute trauma or strain. Initial complaints may be vague, such as a dull forearm ache. Any history of similar symptoms in the past, including diagnosis and treatment strategies should be recorded.

Documentation of probable work–relatedness should be made, including the injured worker's job title and occupational tasks. Specific attention should be directed towards confirming occupational risk factors such as repetitive, sustained or forceful wrist dorsiflexion, power grip, exposure to vibration, repetitive extended elbow reach with forceful pulling, and repetitive pronation and supination of the forearm against resistance. Record any recent changes in work duties, overtime, and work station or process design. Document any relationship of the symptoms to the work day, work week, particular task, and the use of any specific tools and equipment. A history of lost work days due to these symptoms, and other work–related musculoskeletal diagnoses should be recorded. Any functional impairment or current activity or work modifications should be noted.

Rule out non occupational activities that could be causing or aggravating the condition, such as activities that require gripping or hyperextending the wrist.

Olecranon bursitis may be secondary to systemic illness.

Past medical history and current health status should be documented. Routine screening questions for cervical or shoulder pain or injury should be asked.

A physical examination should be performed with documentation of the following findings:

Inspection for: deformity, swelling or erythema.

Provocative maneuvers: such as the presence or absence of pain with resisted dorsiflexion of the wrist, passive wrist flexion with the elbow in full extension, resisted supination of the forearm, and Tinel's sign.

Range of motion: elbow flexion and extension, pronation and supination, wrist flexion and extension. Note any flexion contracture deformity of the elbow.

Palpation: Document the presence or absence of the following: elbow deformity, tenderness, heat or crepitus (including olecranon process and medial epicondyle). Also check the forearm for deformity, heat or tenderness.

Muscle strength testing of the entire upper extremity should be performed as relevant.

Appropriate distal extremity exam should include neurological testing. A routine examination of the shoulder, neck, and wrist, and hand (palpation, range of motion, strength testing) should be performed.

A differential diagnosis should be considered at this point: such as radiculopathy, or shoulder pathology with referred pain.

1.2.2 Diagnostic imaging (M=4) [4]

Radiographic studies of the elbow and forearm should be obtained when clinically indicated.

As a rule, the diagnosis of elbow problems does not require an imaging study.

1.2.3 Laboratory studies

Appropriate laboratory studies should be considered if there is evidence of an infectious or diffuse inflammatory process as a contributing or causative factor. (M=4) [4]

1.2.4 Electromyography/Nerve conduction studies (EMG/NCS)

Nerve conduction studies may be indicated for elbow problems associated with neurological deficits. (M=4) [4]

1.2.5 Aspiration of the olecranon bursa is not routinely indicated unless there is suspicion of infection or metabolic disease.

1.3 Inappropriate initial assessment methods

1.3.1 Routine diagnostic imaging (M=2) (C=1) [1]

1.3.2 Routine laboratory studies (M=2) (C=1) [1]

1.3.3 Routine nerve conduction studies (M=2) (C=1) [1]

1.3.4 Arthroscopy, arthrogram (M=1) [1]

1.3.5 Ultrasound (M=1) [1]

1.3.6 MRI scan (M=1) [1]

2.0 Initial Treatment

2.1 Purpose

The purpose of the initial treatment is to reduce, symptoms, optimize healing/function and increase work with appropriate modifications to minimize the risk factors that contributed to the injury.

2.2 Appropriate initial treatments

2.2.1 Education (M=4) [4]

All injured workers should receive instruction concerning the nature of their condition, its risk factors, preventive measures and goals of initial therapy.

This information should be provided by the physician or by a Physical or Occupational Therapist as part of a referral for treatment (see Physical Treatments and Passive Modalities section). The injured worker should be instructed on how to eliminate or modify any aggravating non–occupational activities and sports during treatment.

2.2.2 Ergonomic modification (M=4) [4]

Work restrictions or modifications which reduce the injured worker's exposure to the etiologic or aggravating activity are of central importance.

Examples of such restrictions include preclusion from or reduction in time performing tasks requiring repetitive, sustained or repetitive forceful wrist or hand activities, repetitive elbow motion, prolonged elbow positioning or prolonged exposure to vibration. Be specific about work preclusions and avoid terms such as "light duty". The physician should discuss with the employer appropriate tasks for the injured worker to perform while undergoing treatment, and to discuss task modification once the injured worker resumes full and unrestricted employment, in order to reduce the chance of recurrence. Initial treatment of elbow problems need not involve lost work time. A job evaluation by an experienced spe-

cialist trained in ergonomics may be considered in order to identify appropriate modifications to the tasks, tools, or workstation.

2.2.3 Medications

a. Nonsteroidal antiinflammatory agents can be used. (M=3) (C=4) [3]

The choice of specific drug is discretionary. The injured worker should be screened for contraindications to their use and warned of the common potential side–effects.

b. Acetaminophen is an analgesic which may be used as an adjunct or alternative to NSAIDs. (M=3) (C=4) [3]

c. Opioids may be necessary if the pain is refractory to treatment with non–opioid analgesics. (M=3) (C=4) [3]

2.2.4 Physical treatments and passive modalities

If there is no improvement after 2 weeks the treatment should be modified.

a. Use of thermal modalities in conjunction with physical treatment may be useful.

b. Physical treatments for pain management splinting and/or functional retraining and instruction in a graded exercise program. (M=4) [4]

Appropriate exercises may include, but are not limited to,: 1) gentle muscle stretching; 2) flexibility; and 3) graduated strengthening. Care should be taken while incrementing exercises so that the condition is not aggravated.

c. Appropriate manual therapies may include manipulation, or joint or soft tissue mobilization, supplemented by physical modalities and exercise.[3]

d. Acupuncture

Use of acupuncture in the first 4 weeks of treatment as a part of an overall treatment plan. (C=3) [2]

2.2.5 Protective devices

The use of an elbow and/or wrist support for immobilization may be indicated for a brief period. (M=4) [4]

The use of a splint at work must be carefully considered as it may put the injured worker at risk for further musculoskeletal injury by forcing the adoption of awkward compensatory postures. A forearm strap can be aggravating in the acute stage so its use should be individualized. It is contraindicated in the presence of nerve compression symptoms. Night splinting may be indicated for nerve entrapment syndromes.

2.2.6 Local corticosteroid injection

Local corticosteroid injections of the myofascial areas or bursae may be appropriate, especially if the pain is moderate to severe. (M=4) [4]

Before the injection, it is important to be aware that the olecranon bursa may be the site of infection. In such an instance, an steroid injection would be contraindicated.

2.3 Inappropriate initial treatments

1. Medications–Systemic corticosteroids, and/or muscle relaxant. (M=1) [1]

2. Exclusive use of passive modalities (M=1) (C= 1) [1]

3. Surgery is rarely indicated (M=1) [1]

2.4 Case management

Management during the first 4 weeks of treatment will be determined by the clinician's evaluation of the injured worker's response to therapy. Generally, re–evaluation of the problem, determination of treatment effectiveness and work status should be performed every 1–2 weeks until return to modified or full work is achieved. At each visit, the initial diagnosis should be confirmed or modified and the treatment plan adjusted if necessary. If symptoms continue to increase despite adequate conservative therapy, or if there is significant disability due to pain, referral to a provider trained and experienced in the evaluation and treatment of occupational disorders is warranted in the initial treatment phase. Once the acute pain is controlled, the treatment should focus on progressive rehabilitative exercises to increase strength and endurance, and activity modification. This approach minimizes the chance of recurrence once normal occupational duties are resumed.

3.0 Secondary Assessment

3.1 Purpose

Most workers with elbow injuries will respond to initial treatment with reduction of pain and near or full return to occupational duties. The purpose of secondary assessment after conservative treatment is to determine the cause of delayed recovery. This may be due to misdiagnosis, non–compliance with the treatment regimen, inappropriate work modifications or other perpetuating factors. A reconsideration of the initial diagnosis is necessary at this stage and a differential diagnosis should be reviewed: cervical radiculopathy, shoulder pathology with referred pain and nerve entrapment. Work status and disability should be determined.

3.2. Appropriate secondary assessment methods

3.2.1 History and physical examination

An interval history and physical examination should be performed. Particular attention should be paid to compliance with and response to therapy. The development of any new symptoms should be documented as well as side effects of treatment modalities. The appropriateness of the prescribed work restrictions should be reviewed, including how they were accommodated by the employer.

3.2.2 Diagnostic imaging

Radiographic studies of the elbow and forearm may be considered if, on re–evaluation, the physician suspects morphologic pathology. (M=4) [4]

The use of MRI and arthrography is rarely indicated except for the evaluation of intraarticular pathology.

3.2.3 Laboratory studies

Laboratory studies may be performed if there is evidence of an infectious or diffuse inflammatory process as a contributing pathology. (M=4) [4]

3.2.4 EMG/NCS

Electrodiagnostic studies should be considered if there is clinical evidence of nerve entrapment or cervical radiculopathy as alternative diagnoses. (M=4) [4]

3.3 Inappropriate secondary assessment methods

3.3.1 Arthroscopy or arthrogram (M=1) [1]

3.3.2 Ultrasound (M=1) [1]

4.0 Secondary Treatment

4.1 Purpose

Secondary treatment options should be selected on the basis of the injured worker's response to initial conservative treatment for 4 weeks. If specific causes of delayed recovery are determined, they may be addressed in this phase. The purpose of secondary treatment is to reduce symptoms and optimize the return to normal arm function and a graded resumption of full and unrestricted employment.

4.2 Appropriate secondary treatments

4.2.1 Continued conservative management

a. Occupational activities should be advanced and modifications to the work environment reviewed to prevent exacerbation of symptoms. (M=4) [4]

An ergonomic assessment of the workstation may be necessary to facilitate this.

b. The injured worker's progress in the progressive exercise program should be reviewed. (M=4) [4]

c. Medication

NSAID's or acetaminophen may be used periodically.

Non steroidal anti–inflammatory agents should be discontinued as soon as possible. (M=4) [4]

A trial of 6–8 weeks maximum is recommended. They may be re–instituted briefly for symptom flare. Periodic acetaminophen may be used also.

Opioids may be necessary if the pain is refractory to treatment with non–opioid analgesics. (M=3) (C=4) [3]

Use of thermal modalities in conjunction with physical treatment may be useful.

d. Bracing or supports may be continued if beneficial. (M=4) [4]

It may be uncomfortable and exacerbate symptoms, especially if worn inappropriately (i.e. overlying the trigger point).

e. Various manual and/or passive modalities may be used but, not standing alone as a sole treatment. [3]

f. Acupuncture (M=3) (C=3) [3]

g. Biofeedback [3]

4.2.2 Local injection including corticosteroids during the secondary phase may be indicated.

If there is partial or transient relief with the first injection, local injections may be repeated (up to a total of three). (M=3) (C=4) [3]

Complications of injection include local infection, hematoma, skin discoloration and subcutaneous fat atrophy. Injection must be accompanied by the activity and workplace modifications discussed above.

4.2.3 Surgical referral

Surgical consultation is recommended if any of the following criteria are met: (C=4) [4]

a. Failure of conservative treatment and indication of a surgically correctable condition.

4.3 Inappropriate secondary treatments

4.3.1 Medications.

Systemic corticosteroids and/or delivery of medications by ionto or phonophoresis. (C=1) [1]

4.4 Case management

If the injured worker has not resumed near normal work duties after 8 weeks of full conservative therapy including adherence to a graded exercise program, a referral to a physician trained and experienced in the evaluation and treatment of occupational disorders or an Orthopedic or Hand Surgeon is recommended. Consultation should include a complete evaluation and recommendations for treatment and return to appropriate work. If psychosocial issues are judged to contribute to the disability, it may be appropriate to have a psychologic evaluation. If the condition becomes chronic or disabling despite full conservative treatment including appropriate medical, rehabilitative, and ergonomic interventions (and surgery if indicated), the injured worker should be evaluated for permanent disability.

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Appendix 6.0 Description of IMC Appropriateness Levels

| | Level 4 | Level 3 | Level 2 | Level 1 |
|---|---|---|---|---|
| Good Research Based Evidence | Yes | No | No | No |
| Clinical Evidence | Yes | Yes | Some | No |
| Consensus Of The Health Care Community | Yes | Yes | Partial | No |
| Clinical Utility Of Appropriateness Level For Common Knee Problems | Appropriate and recommended | Acceptable or appropriate in most cases | Appropriate in uncommon individual cases. Document the case-specific clinical factors or circumstances which make this procedure reasonable and necessary for this injured worker. | Inappropriate |

NOTE: Authority cited: Section 139(e)(8), Labor Code. Reference: Section 139(e)(8), Labor Code.

HISTORY

1. New section filed 7–17–97; operative 8–16–97 (Register 97, No. 29).
2. Amendment filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
3. Change without regulatory effect amending section filed 7–12–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

## § 77. Treatment Guideline for Problems of the Hand and Wrist.

The method of treating industrial injury to the hand and wrist shall be set forth below in the "Treatment Guideline for Problems of the Hand & Wrist" as adopted by the Industrial Medical Council on May 15, 1997.

PROBLEMS OF THE HAND AND WRIST

Introduction

Conditions affecting the hand and wrist are common among workers with tasks requiring intensive use of the upper extremity. Evaluation can be difficult, given the anatomical and functional complexity of the region. However, a systematic assessment of upper extremity symptoms contributes to accurate, timely and cost–effective diagnosis and treatment.

Scope of this guideline

This guideline is intended for use in the diagnosis and management of hand and wrist tendinitis, de Quervain's tenosynovitis, nerve entrapment syndromes and wrist pain in working aged adults whose occupational activities put them at risk for these problems. Guidelines for initial assessment (first 4 weeks) and subsequent secondary assessment (1 to 3 months) are presented here. This guideline does not address all conditions causing hand & wrist symptoms such as fractures. This guideline does not deal with legal issue of causation or work relatedness. Treatment

guidelines are designed to assist providers by providing an analytical framework for the evaluation and treatment of the more common problems of injured workers. These guidelines are educational and descriptive of generally accepted practices for the assessment and treatment of wrist pain, nerve entrapment syndromes, de Quervain's tenosynovitis and hand and wrist tendinitis. Due to the many factors which must be considered when providing quality care, health providers shall not be expected to always provide care within the stated guidelines. Treatment authorization, or payment for treatment, shall not be denied based solely on a health care provider's failure to adhere to the IMC guideline. The guidelines are not intended to be the basis for the imposition of civil liability or professional sanctions. They are not intended to either replace a treating provider's clinical judgment or to establish a protocol for all injured workers with a particular condition. It is understood that some injured workers will not fit the clinical conditions contemplated by a guideline.

Symptom duration is defined as acute (< one month), subacute (one – three months) and chronic (> three months).

For the purpose of this document, a provider is defined as any health care provider acting within the scope of his/her practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician.

All health care providers acting within the scope of their practice, including those to whom an injured worker has been referred or whose treatment has been prescribed by a treating physician, shall be allowed to bill and be reimbursed in accordance with usual practices.

A provider may vary from these guidelines, if in his or her judgment, variance is warranted to meet the health care needs of the injured worker and that variance remains within the standards of practice generally accepted by the health care community, and the provider documents the need for the variance in the evaluation report or the medical treatment record in the manner that is generally accepted by the health care community.

Not every medical situation can be addressed in these regulations and medical standards change constantly. The documentation required of the provider is necessary to monitor and explain the use of variances.

In all cases, the provider shall document no later than 6 months from the date of injury, whether further treatment is warranted and whether the injured worker has significant subjective and objective evidence of the condition not having plateaued.

1.0 Initial Assessment (First month)

1.1 Purpose

The purpose of the initial assessment of hand and wrist is to establish specific diagnosis(es). These may include hand and wrist tendinitis/ tenosynovitis, and nerve entrapment syndromes. An additional purpose of the initial assessment is to identify and document any medical, mechanical or psychosocial factors which are contributing to the symptoms and/ or may influence the response to treatment. At the discretion of the physician, a shorter, less detailed evaluation may be acceptable.

1.2 Appropriate Initial Assessment Methods

1.2.1 History

As appropriate, the initial history should contain the following basic information for the medical record: the injured worker's age, hand dominance, job description, pre–injury limb function, daily physical activities, previous limb injuries and relevant medical/surgical history. A detailed symptom history may be documented, including characteristics of pain (type, location, duration, severity, radiation), associated symptoms, exacerbating and relieving movements and other factors, and the impact on function at home or work. Information concerning recent trauma and previous diagnostic or treatment procedures (including home treatments) may be obtained. The initial evaluation must address the possible presence of mechanical factors which are causing, aggravating, or precipitating the painful condition, including occupational and nonoccupational physical activities. The relationship of the symptoms to the performance of specific activities may be sought and recorded (e.g. symptoms experienced during work tasks, time off, hobbies, sports or other activities). Inquiry into any history of similar symptoms, previous diagnoses and treatments should be made. The initial history may also note any psychosocial factors which are potentially relevant to the clinical course of the condition, including work status, economic or psychological effects of the condition, and unresolved litigation or workers' compensation issues.

If tendinitis/tenosynovitis is suspected, ask about the typical symptom of localized pain aggravated by direct pressure over or use of the affected muscle–tendon unit. The discomfort may radiate in a proximal or distal direction when force is applied to the tendon. Initially intermittent discomfort may be experienced, but can progress to become a persistent burning or sharp pain. Associated symptoms descriptive of triggering, crepitus, weakness and/or limited motion may be present.

An example of a common tenosynovitis is de Quervain's tenosynovitis. The classic presentation of this condition is pain over the radial styloid; local swelling may also be present. The injured worker may describe symptoms of proximal and distal radiation of pain from this site and/or weakness of pinch or grip strength. The discomfort is exacerbated by ulnar wrist deviation and thumb flexion and adduction. Triggering may be present if the condition is chronic.

If Nerve Entrapment Syndromes are suspected, inquire about the typical symptoms – insidious onset of hand paresthesias in the thumb, index, middle and/or radial aspect of ring fingers (median nerve inervation). Many injured workers will describe paresthesias more diffusely, in all fingers. Nocturnal paresthesias, if present, are particularly characteristic. Dull aching hand pain, subjective grip stiffness, weakness of grip or pinch, hand clumsiness and impaired manual dexterity are other presenting complaints. Symptoms may be vague or atypical, and non–specific wrist and hand symptoms in a manual worker should prompt consideration of CTS in the differential diagnosis.

Self–administered hand symptom diagrams have been developed and may be useful in obtaining a detailed description of the distribution and severity of hand symptoms. They may serve as an aid in the history and physical examination.

Documentation of activities as they relate to hand should be made, including the injured worker's job title and a description of tasks performed Note the use of each hand in work tasks. Record any recent changes in work duties, overtime, tool design and patterns of tool use or any loss of function, lost work time, or limitation of activity or modification of work due to symptoms. Work station design and adjustability, as well as any prior ergonomic assessment or recent modifications should be noted. Record the onset of symptoms in relation to the work day, work week and specific work tasks or equipment. Any history of previous work related musculoskeletal diagnose be recorded.

Consider non–occupational activities and medical conditions that could cause or aggravate the presenting symptoms, i.e. hobbies, child handling, sports, and musical pursuits.

When the clinical picture is confusing, screening questions should be asked about neck or other upper extremity injury or symptoms. In the case of an atypical presentation of nerve entrapment syndromes, other pathologies may be considered. These include:

a. Cervical radiculopathy (especially C–6 or C–7)

b. Neurovascular compression syndromes such as:

Thoracic outlet syndrome

Anterior scalene syndrome

Costoclavicular syndrome

Hyperabduction syndrome

c. Other nerve compression syndromes:

Radial nerve entrapment: Posterior interosseus entrapment, radial tunnel syndrome

Ulnar nerve entrapment: At the elbow or in the Canal of Guyon

Median nerve entrapment: Pronator teres syndrome, anterior interosseus syndrome

d. Other conditions: Reflex sympathetic dystrophy, Raynaud's syndrome inflammatory, or degenerative joint diseases.

Past medical history and current health status may be elicited and should be evaluated for possible clinical significance. These may include, but are not limited to:

1. Pregnancy
2. Diabetes mellitus
3. Hypothyroidism
4. Fluid retention / edema
5. Rheumatoid arthritis/degenerative joint disease of the wrist and hand
6. Gout

1.2.2 The initial physical examination will be focused upon the affected part but may also include a basic examination of both upper extremities, including the cervical spine, shoulder, upper arm, elbow, forearm and hand. General physical signs of underlying medical diseases may also be sought. This approach can identify more distant causes of pain such as cervical radiculopathy and/or non-work related disorders contributing to or causing the symptoms (e.g. myxedema). Examination of the contralateral extremity is useful for comparison and to identify any bilateral abnormalities. Basic elements of the wrist and hand examination may include:

*Inspection* for swelling, erythema, thenar muscle atrophy, nodules, signs of trauma, surgical scars, arthritic bony changes, soft tissue masses, hyper/hypohydrosis, altered hair pattern, edema, cyanosis, guarding, abnormal posture or other deformities of joints or soft tissues.

*Palpation* of osseous and soft tissue structures for tenderness, swelling, skin temperature asymmetry, abnormal sweating, synovial thickening, masses, ganglion cysts, nodules, bony deformity, pulses, muscle spasm, myofascial trigger points, or crepitus.

*Range of motion testing* as appropriate of neck, shoulders, elbows, forearm, wrist and fingers for pain, range limitation, crepitus at joint or tendon sheath, tendon triggering or locking. On range of motion testing of tendinitis/tenosynovitis, the focal discomfort is typically increased by passive stretching of the affected tendon, especially with composite range of motion testing. Associated symptoms descriptive of triggering, crepitus weakness and/or limited motion may be present.

*Muscle strength testing* may include such specific areas as the abductor pollicis brevis, resisted palmar abduction of the thumb for nerve entrapment syndromes. Serial grip strength measurements with a dynamometer may be useful in following clinical progress of tendinitis/tenosynovitis.

*Provocative maneuvers* for tendinitis, muscle strain, tendon subluxation, joint/ligament instability, nerve entrapment, and if warranted, thoracic outlet syndrome. Consider more specific tests such as: Tinel's – performed by percussing lightly along the projection of the given nerve, Phalen's – sustained wrist flexion for 60 seconds, and Finkelstein's – pain over the radial styloid is augmented by gentle passive ulnar deviation of the wrist with the thumb held adducted in the palm. It should be remembered that positive results from Finkelstein's test may also be obtained not only in de Quervain's tenosynovitis, but also in the presence of the following conditions: inflammation of the wrist extensor tendons (intersection syndrome), and entrapment of the superficial dorsal radial sensory nerve (Wartenberg's syndrome).

*Neurologic testing* including reflexes: biceps, triceps and brachioradialis; sharp/dull, light touch, two-point, or vibratory sensory testing; strength testing by resisted movement and grip strength dynamometer, if available.

*Circulatory evaluation* of radial and ulnar arterial sufficiency.

1.2.3 Diagnostic imaging

1.2.3.1 Plain films of the forearm, wrist or hand may be done after taking a medical history, performing a physical examination, and determining that this study is medically relevant. [4]

1.2.3.2 CT, MRI, isotope, or similar scans of the wrist are not warranted unless there is a specific, suspected, clinical entity appropriate for the study. The examiner requesting this study should plainly state the reason for requesting the study and the treatment plan related to the results. [4]

1.2.4 Laboratory Testing

a. Tendinitis/tenosynovitis or wrist pain: Certain blood tests can be useful in establishing the diagnosis of an underlying metabolic or rheumatologic disease if such a condition is suspected on the basis of the history and physical examination during the evaluation of probable tendinitis/tenosynovitis or wrist pain. [4]

b. Nerve entrapment syndromes: During the evaluation of probable, entrapment syndromes, laboratory tests should be done if a contributing systemic diagnosis such as joint disease, diabetes mellitus, or thyroid disease is suspected. [4]

1.2.5 Diagnostic Injections

Diagnostic injection of local anesthetic by the experienced, may be useful for diagnosis in the case of atypical presentations such as referred pain or the presence of multiple disorder. [3]

1.2.6 Electromyography and Nerve Conduction Tests.

Nerve entrapment syndromes: The initial history and physical exam are the most important assessment tools and the working diagnosis may be made without confirmation by nerve conduction studies. [4]

1.3 Inappropriate initial assessment methods

1.3.1 Thermography [1]

1.3.2 Vibrometry [1]

1.3.3 Portable neurometer [1]

1.3.4 Electrodiagnostic testing to establish the diagnosis of de Quervain's tenosynovitis [1]

2.0 Initial Treatment

2.1 Purpose

The purpose of initial treatment is to promote healing, optimize function and allow continued productive employment with appropriate modifications, as indicated, to avoid adverse effects. The initial treatment of nerve entrapment syndromes, tendinitis, tenosynovitis, and wrist pain is nonsurgical. Application of the conservative therapy described below will result in significant improvement in a majority of cases. Effective workplace intervention may be crucial. The period of initial (conservative) treatment should be 4 weeks with re-evaluation at least every two weeks to ascertain improvement.

2.2 Appropriate initial treatment methods

2.2.1 Education

a. All injured workers with these conditions should receive instruction concerning the anatomy and nature of their condition, risk factors, preventive measures, appropriate exercises and goals of the initial treatment methods including time frame for expected improvement. [4]

The responsibilities of the injured worker in implementing the treatment plan should be emphasized. Education should be provided by the treating physician and may be supplemented by a physical or occupational therapist in the context of referral for the instruction on gentle flexibility and range of motion exercises, joint protection, work simulation and conditioning. Educational literature, if provided, should be reviewed with the injured worker. Home hobby, craft, sport and avocational activities should be curtailed, as appropriate, if they are considered to be potentially aggravating or causative factors.

2.2.2 Activity and Environmental Modifications

a. If occupational factors cause or aggravate the condition, appropriate work restrictions and/or ergonomic workplace changes may be advised by the provider. These should protect the involved tissues while allowing the injured worker to perform some of the specific elements of the job. [4]

b. Modified work is strongly encouraged since initial treatment need not require time lost from work. [4]

Prescribed modified work guidelines should be as specific as possible, avoiding generic terms such as "light duty." Examples of restrictions are a reduction in daily hours, complete restriction from aggravating or high risk tasks, or specific job rotation to promote varied hand position and activities. Other examples of such modifications include work station adjustment, tool redesign, protective equipment and other engineering controls. It may be necessary to contact the company directly to discuss alternative productive work within the scope of the prescribed restrictions.

2.2.3 Immobilization/Stabilization

a. Nerve entrapment syndromes: Immobilization/stabilization of the wrist in a neutral position may be used and is most effective when worn in the night. [4]

The splint should prevent wrist flexion and extension without constriction. If not properly fitted, it can lead to further nerve entrapment, muscle atrophy, vascular compression, discomfort and chafing.

If a pre–formed splint does not fit properly a custom–made splint may be fabricated. [4]

b. Severe de Quervain's tenosynovitis: Immobilization of the wrist and thumb interphalangeal joint with a spica thumb splint or other similar device can be considered for up to 3 to 4 weeks. [4]

Splinting may not be necessary in milder cases and the functional restriction on thumb and hand use imposed by spica splinting is considerable.

c. Tendinitis/tenosynovitis: Immobilization with appropriate splints should also be considered in case of moderate and severe tendinitis/tenosynovitis or for short–term(up to 4 weeks) care of wrist pain. [4]

d. Splints must fit properly and should be prescribed by the provider. [4]

The injured worker should be instructed in proper use of the splint, including the practice of range of motion exercises throughout the day. Careful monitoring of clinical progress is necessary during splinting to avoid the complications of muscle atrophy and joint stiffening.

2.2.4 Physical Treatments

a. Appropriate manual/manipulative therapies, including joint and soft tissue mobilization may by used up to a maximum of 12 treatment visits. Referral to an appropriate provider should be considered." [3]

b. Various manual and/or passive modalities should not be utilized as the sole treatment. A graduated exercise program to promote strength, flexibility, and normal function should also be utilized. [3]

c. Acupuncture may be prescribed up to a maximum of 12 treatments in 4 weeks. [3]

2.2.5 Passive Modalities

a. Active physical treatments can be supplemented by selected passive modalities (heat, cold, ultrasound, electrical stimulation, iontophoresis, phonophoresis, aquatic therapy) at the discretion of the provider for the first 4 weeks of treatment. [4]

b. Ice treatment periods should not exceed twenty minutes. Application of appropriate modalities at home may also be useful during and following the acute inflammatory phase. [3]

2.2.6 Medications

2.2.6.1 A physician may prescribe appropriate analgesic and/or anti–inflammatory medications. [4]

2.2.6.2 Local injection of steroid medication (with or without accompanying local anesthetic can be used as an initial treatment modality for cases of (1) moderate to severe inflammation or (2) stenosing tenosynovitis which affects function, after consideration of the risks of this procedure. [4]

2.2.7 Surgical Referral for Nerve Entrapment Syndromes

Surgical consultation should be made in the initial treatment phase if there is: 1) thenar muscle weakness or atrophy; 2) unremitting sensory loss or paresthesia 3) significant hand dysfunction; 4) evidence of a space occupying lesion or history of acute or traumatic onset. In these instances, an EMG/nerve conduction study may be performed to confirm the diagnosis. [4]

2.3 Inappropriate Initial Treatments

2.3.1 Surgical Treatments

a. Surgical treatment of de Quervain's tenosynovitis or hand and wrist tendinitis/tenosynovitis without a trial of therapy, including a work evaluation, is generally not indicated. [1]

2.3.2 Medication

a. Pyridoxine / Vitamin B6

b. Oral corticosteroids

2.3.3 Tendinitis/tenosynovitis or wrist pain: Prolonged application of passive modalities (beyond 4 weeks) [1]

2.4 Case Management

During the first month of evaluation and treatment, the case management decisions must be made by the treating physician(s), based on the injured worker's clinical progress. Re–evaluation of the diagnosis, treatment effectiveness and work status should be performed by the physician at least every 2 weeks. Referral to an appropriate provider during the initial phase of treatment may be indicated for patient education, pain reduction and the implementation of a graduated program of flexibility and conditioning exercises. Referral should be considered for all patients with moderate to severe symptoms, those assigned total temporary disability and those undergoing surgical treatment.

The goal is to promote healing and maximize function for a gradual return to occupational and non–occupational activities.

Referral to a surgeon competent in the treatment of hand and wrist disorders is appropriate after failure of conservative treatment.

3.0 Secondary Assessment (Reassessment at 4 weeks)

3.1 Purpose

The purpose of the secondary assessment is to identify the reason(s) for delayed recovery from wrist/hand symptoms and/or functional impairment after initial evaluation and treatment. This requires review of both the working diagnosis and differential diagnosis, as well as the contributing factors and the treatment approach.

3.2. Appropriate Secondary Assessment Methods

3.2.1. History

The interval history should document the treatment measures prescribed and implemented, and the evolution of symptoms during this treatment. The previously recommended modifications of occupational and nonoccupational activities should also be reviewed. Current work status should be noted. If there has been no significant improvement, or worsening of symptoms, the history should be carefully reviewed to address other co–existing or contributing musculoskeletal pathologies and systemic illnesses as per the Initial Assessment section.

3.2.2 Physical Examination

A reexamination should assess any changes in the upper extremity, especially tenderness, atrophy, range of motion, serial grip strength, and response to provocative maneuvers.

Attention should be paid to any changes in the provocative and sensibility tests. If symptoms have worsened or remain unimproved, the physical exam should include an evaluation for undiagnosed proximal upper extremity and neck pathology.

3.2.3 Diagnostic Imaging

3.2.3.1 If not previously performed or unavailable, plain films of the forearm, wrist or hand may be considered after the medical history and physical examination indicate that this study is medically relevant. [4]

3.2.3.2 CT, MRI, isotope, or similar scans of the wrist are not warranted unless there is a specific, suspected, clinical entity which may be diagnosed by the study. The examiner requesting this study should justify the rationale for requesting the study and for supporting the treatment plan. [4]

3.2.4 Laboratory Studies

Certain laboratory studies may be useful in establishing the diagnosis of an underlying metabolic or rheumatologic disease if such a condition is suspected. [4]

3.2.5 Diagnostic Injections

Diagnostic injection of local anesthetic may be useful for diagnosis in the case of atypical presentations (e.g. referred pain, presence of multiple disorders). [3]

3.2.6 Electromyography and Nerve Conduction Tests

3.2.6.1 Wrist pain and tendinitis/tenosynovitis

Electrodiagnostic studies are appropriate if neuropathy is suspected from the history and physical examination. [4]

3.2.6.2 Nerve Entrapment Syndromes: [4]

Nerve conduction studies may be useful in the re–evaluation phase and should be reserved for:

1) cases of persistent or worsening symptoms and clinical signs despite a trial of conservative treatment;

2) cases where the diagnosis remains in question and the history and physical exam are suggestive of another type or location of nerve pathology.

Electrophysiologic studies can be falsely negative in 10–20% of individuals with clinical CTS and false–positives in asymptomatic people do occur rarely. Therefore the results must be considered in the context of the history, physical exam and presence of occupational risk factors.

A complete evaluation should include distal median and ulnar nerve sensory and motor nerve conduction studies under controlled limb temperature conditions. The laboratory standards for an abnormal test should be consistent with published values and stated in the report. Nerve conduction studies are also useful to determine the site of nerve impingement if a more proximal location is suspected, and can be helpful in the detection of a generalized polyneuropathy.

3.2.7 Ergonomic Evaluation

If continued occupational exposure to exacerbating factors is contributing to delayed recovery a worksite evaluation by a specialist trained in ergonomics may be necessary. [4]

3.2.8 Psychological evaluation

A psychological evaluation with justification may be appropriate in cases where little clinical improvement is noted. [3]

3.3 Inappropriate secondary assessment methods

3.3.1 Vibrometry [1]

3.3.2 Portable neurometer [1]

4.0 Secondary Treatment

4.1 Purpose

4.1.1 Nerve entrapment syndromes: The goal of secondary treatment is the symptom–free return to full employment (in a graded manner) with the provision of appropriate immediate and long–term work and activity modifications to prevent recurrence. Continuance of conservative treatment is warranted if symptoms are improving. If there has been no improvement, or clinical progression despite the injured worker's compliance with the initial treatment protocol (including adherence to work restrictions) further treatment strategies are recommended. These should also be considered in the injured worker who has initial improvement but plateaus with persistent symptoms during the continuation of conservative care. If there has been documented consistent improvement of symptoms and physical findings with adherence to the Initial Treatment Protocol outlined above, continued conservative treatment is warranted for up to 2–4 more months (for a total of approximately 6 months), with re–evaluation every 2–4 weeks.

If there has been documented, consistent improvement of symptoms and physical findings with adherence to the Initial Treatment Protocol outlined above, continued conservative treatment is warranted.

4.1.2 Hand and wrist tendinitis/tenosynovitis: The purpose of secondary treatment of hand and wrist tendinitis/tenosynovitis is to optimize recovery from persistent symptoms. Most cases will respond to continued nonsurgical therapy. Secondary treatment for wrist pain will be diagnosis specific and designed to optimize recovery from persistent wrist pain causing conditions.

4.2 Appropriate secondary treatment methods

4.2.1 Education

As part of the continuing medical and physical treatment programs, all patients should receive instruction reviewing their clinical progress, time frame for expected improvements, risk factor, preventive measures, appropriate exercises and treatment options. [4]

Such instruction should be provided by the treating physician and may be supplemented by a physical or occupational therapist as part of an appropriate referral for flexibility and strengthening training.

4.2.2 Activity and environmental modifications

4.2.2.1 Restriction of occupational and nonoccupational activities which stress the affected area (via direct pressure, forceful or repetitive motion or static tension) should be continued or gradually relaxed based upon the clinical status. [4]

Prescribed modified work guidelines should be as specific as possible, avoiding generic terms such as "light duty." Further direct communication with the employer can facilitate the permanent implementation of job task, tool, and workstation modifications to speed recovery and prevent recurrence.

4.2.3 Immobilization

a. de Quervain's: Immobilization/stabilization for de Quervain's tenosynovitis of the wrist and thumb joint with a spica thumb splint or other device should usually not be continued for more than 4 weeks. [4]

b. Hand and Wrist Tendinitis: Immobilization/stabilization with appropriate splints should be reduced as soon as the symptoms improve (e.g. use limited to performing exacerbating tasks), and discontinued when the symptoms are mild. [4]

Continuous splinting should not exceed 4 weeks duration; intermittent or nocturnal splint use may be applied for longer periods. [4]

Institution of splinting can be considered as a secondary treatment for persistent or worsening cases. [4]

c. Nerve entrapment syndromes: If splinting has been on a continuous basis, it may be reduced to nighttime use only or PRN use for aggravating activities. [4]

4.2.4 Physical Treatments

a. Graduated exercises as described in initial treatment may be continued during the rehabilitative process. [4]

b. Manipulation/mobilization for joint dysfunction (not for nerve entrapment): After 6 treatment visits, an evaluation should be made to determine subjective and objective improvement. If there is no documented subjective and objective improvement, this modality should be discontinued. [3]

c. Referral to an appropriate provider for training in flexibility and strengthening exercises can be considered for tendinitis/tenosynovitis. The duration of secondary physical treatment referral should not exceed 4 to 6 weeks. [4]

d. Acupuncture [3]

e. Biofeedback [3]

4.2.5 Passive Modalities

Use of thermal modalities in conjunction with physical treatment may be useful in the treatment of tendinitis, tenosynovitis, de Quervain's, and wrist pain.

4.2.6 Medications

a. Tendinitis/tenosynovitis/wrist pain: Oral nonsteroidal antiinflammatory medications (NSAIDs) may be continued judiciously after consideration of their cumulative adverse effects risk. Opioids should be reserved for pain refractory to other medications. [4]

b. Nerve entrapment syndromes: If anti–inflammatory agents have been used continuously in the initial 6–8 weeks of treatment, they should be discontinued as the risk of side–effects outweighs potential benefits. [4]

They may be re–instituted for brief trials in the event of symptom flare.

Acetaminophen may be used periodically. [4]

4.2.7 Injection

4.2.7.1 Tendinitis/Tenosynovitis

a. If not used during the first month, local injection of steroid medication (with or without accompanying local anesthetic medication)can be used for cases of persistent symptoms after consideration of the risks of this procedure. [4]

b. Repeat corticosteroid injections can be given at intervals, to a maximum of 3 injections during the course of the second and third months. [4]

c. The suspected presence of focal infection (e.g. tuberculous tendinitis) is a contraindication to steroid injection. Extra caution is warranted in the injection of steroids around the extensor pollicis longus tendon at or distal to Lister's tubercle given the elevated risk of tendon rupture. [4]

d. Steroid injection therapy must be accompanied by the activity modifications discussed above.

4.2.7.2 Nerve Entrapment

Nerve Entrapment corticosteroid injection (with or without local anaesthetic) can be considered if significant symptoms (especially paresthesias) persist. [4]

Injections are only occasionally curative, usually in the injured worker who has been symptomatic for less than three months. A significant percentage of people have attenuation of their symptoms with injection, a good prognostic sign if surgery is eventually necessary. Symptoms frequently return within weeks to months. If there is improvement in symptoms, the injection serves as a diagnostic aid. If relief is prolonged (weeks to months), repeat injections can be given, to a maximum of three, at intervals not less than 6–8 weeks apart.

Contraindications – drug allergy, bleeding disorder, space-occupying lesion.

Potential complications – local hematoma, infection, tendon rupture, reflex sympathetic dystrophy, and inadvertent injection of the median nerve with worsening symptoms. Transient median nerve symptoms occur frequently.

4.2.8 Surgical Treatments

4.2.8.1 Tendinitis/Tenosynovitis

a. Surgical intervention can be considered for cases showing little or no improvement after failure of conservative therapy. [4]

b. Many cases of refractory tendinitis/tenosynovitis are due to the presence of conditions which are not amenable to nonsurgical treatment (e.g. anomalous tendon slips, strictures, large calcifications, tendon subluxation. [4]

4.2.8.2 Nerve entrapment syndromes: *Surgical consultation in the re-assessment phase is indicated if:* [4]

a. the diagnosis of Nerve Entrapment Syndromes has been reasonably established and other pathologies excluded; *and*

b. atrophy or weakness is present; *or*

c. there is unremitting sensory loss or paresthesias or markedly abnormal nerve conduction studies; *or*

d. the injured worker has failed a 3–6 month course of adequate conservative therapy; or

e. the symptoms and physical signs continue to progress during conservative therapy.

Surgery should be performed only by a Hand, Orthopedic, Plastic, or Neuro Surgeon with extensive experience in the selection of candidates for surgical intervention and in the procedure itself. Surgical aftercare should be managed by the surgeon.

4.2.8.3 Surgical procedures are indicated for an appropriately diagnosed, surgically correctable lesions.

4.3 Inappropriate Secondary Treatment Methods

4.3.1 Medications

a. Use of oral corticosteroids is rarely indicated. [1]

b. Pyridoxine / Vitamin B6 [1]

c. Muscle relaxants [1]

4.4 Case management

If the injured worker has not resumed near normal work duties after 8 weeks of full conservative therapy including adherence to a graded exercise program, a referral to a physician trained and experienced in the evaluation and treatment of occupational disorders or an orthopedic surgeon is recommended. Consultation should include a complete evaluation and recommendations for treatment and return to appropriate work. If psychosocial issues are judged to contribute to delayed recovery or heightened disability, it may be appropriate to have a psychiatric evaluation. If the condition becomes chronic or disabling despite full conservative treatment including appropriate medical, rehabilitative, and ergonomic interventions (and surgery if indicated), the injured worker should be evaluated for permanent disability.

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Appendix 6.0 Extensor and Flexor Tendon Compartments

Extensor compartments

1. Abductor pollicis longus and extensor pollicis brevis (de Quervain's tenosynovitis)
2. Extensor carpi radialis longus & brevis (Intersection syndrome)
3. Extensor pollicis longus
4. Extensor indicis proprius, extensor digitorum communis
5. Extensor digiti minimi
6. Extensor carpi ulnaris

Flexor compartments

1. Flexor carpi radialis
2. Flexor carpi ulnaris
3. Flexor digitorum superficialis &profundus
4. Flexor pollicis longus

Appendix 6.0: Wrist Pain – Differential Diagnosis (adapted from Chidgey article)

Bone/Joint

Fracture (occult/nonunion/malunion)

Avascular necrosis: scaphoid, lunate

Joint subluxation: distal radioulnar joint

Carpal instabilities (static/dynamic): scapho–lunate dissociation, etc/ Arthritis/Arthrosis

Post-traumatic, osteoarthritis, rheumatoid, gout, pseudogout, infection, etc.

Osteomyelitis

Bone cyst

Ganglion cyst (intraosseous/extraosseous)

Tumor (benign/malignant): enchondroma, osteoid osteoma, etc.

Other: carpal boss, os styloideum

Ligament

Tear/avulsion ((no/) static/dynamic instability): triangular fibrocartilage, intercarpal ligament tears/ruptures etc.
Sprain
Tendon
Subluxation: extensor carpi ulnaris
Tendinitis: six extensor and three flexor wrist compartments (noncalcific/calcific)
Muscle
Muscle strain
Chronic compartment syndrome
Nerve
Neuroma
Neuropathy: median, ulnar, posterior interosseous, cutaneous sensory nerves, proximal source
Compression/entrapment, toxic/metabolic, inflammatory, etc.
Circulatory
Ischemia
Thrombosis
Aneurysm
Other

Appendix 7.0 Description of IMC Appropriateness Levels

| | Level 4 | Level 3 | Level 2 | Level 1 |
|---|---|---|---|---|
| Good Research Based Evidence | Yes | No | No | No |
| Clinical Evidence | Yes | Yes | Some | No |
| Consensus Of The Health Care Community | Yes | Yes | Partial | No |
| Clinical Utility Of Appropriateness Level For Common Knee Problems | Appropriate and recommended | Acceptable or appropriate in most cases | Appropriate in uncommon individual cases. Document the case-specific clinical factors or circumstances which make this procedure reasonable and necessary for this injured worker. | Inappropriate |

NOTE: Authority cited: Section 139(e)(8), Labor Code. Reference: Section 139(e)(8), Labor Code.

HISTORY

1. New section filed 7-18-97; operative 8-17-97 (Register 97, No. 29).
2. Change without regulatory effect amending section filed 7-12-2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 28). Pursuant to this filing, material adopted pursuant to the Administrative Procedure Act that had previously been incorporated by reference in the California Code of Regulations was instead printed in full in the California Code of Regulations.

[The next page is 2.25.]

## Article 10. QME Application Forms

§ 100. The Application for Appointment as Qualified Medical Evaluator Form.

**APPLICATION FOR APPOINTMENT AS QUALIFIED MEDICAL EVALUATOR**

For the Department of Industrial Relations
Division of Workers' Compensation
P. O. Box 420603
San Francisco, CA 94142-0603

| FOR DWC USE ONLY |
|---|
| QME NO.: |
| INPUT DATE: |
| INPUT BY: |

**BLOCK 1 (FOR ALL APPLICANTS) PLEASE TYPE OR PRINT LEGIBLY**

**Please list your primary location. DO NOT USE P. O. BOX. Additional locations may be added when your fee assessment is paid. You will be billed shortly after passing the QME test.**

| LAST NAME | FIRST NAME | MI | JR/SR |
|---|---|---|---|
| | | | |

BUSINESS ADDRESS WHERE QME EVALUATIONS WILL TAKE PLACE

| | CITY | ZIP + 4 |
|---|---|---|
| | | |

MAILING ADDRESS FOR CORRESPONDENCE, IF DIFFERENT

| | CITY | ZIP + 4 |
|---|---|---|
| | | |

| (AREA CODE) PHONE NO. | CAL. PROFESSIONAL LICENSE NUMBER | EXPIRATION (MM/YY) | YEAR ENTERED PRACTICE |
|---|---|---|---|
| | | | |

***PROCEED TO BLOCK 2***

**BLOCK 2 (FOR ALL APPLICANTS) IMPORTANT: BLOCK 2 Must be fully completed before proceeding.**

**PROFESSIONAL EDUCATION INDICATE DEGREE OBTAINED (e.g. MD, DC, DO, Ph.D, Psy.D, Ed.D, etc.)**

COLLEGE ,UNIVERSITY or MEDICAL SCHOOL

| CITY | STATE | DATE OF DEGREE | DEGREE |
|---|---|---|---|
| | | | |

**If MD or DO, COMPLETE BLOCKS 3,6,7,8,9,10**
If DC, COMPLETE BLOCKS 4,7,8,9,10
If Ph.D, Psy.D or Ed.D, COMPLETE BLOCKS 5,7,8,9
Other Degrees, COMPLETE BLOCKS 7,8,9,10

BLOCK 3 (FOR MDs AND DOs ONLY) ***POSTGRADUATE TRAINING:***

**NOTE**:For MDs or DOs who are not board certified, state law requires successful completion of a residency training program accredited by the American Council on Graduate Medical Education or the American Osteopathic Association. Fellowships will not be accepted in lieu of accredited residency training.

DO NOT ENTER "SEE RESUME"

| PGY 1 or INTERNSHIP: Hospital/Facility | Location (City/State) | Type | Year From | Year To |
|---|---|---|---|---|
| | | | | |

| RESIDENCY : Hospital/Facility | Location (City/State) | Type | From | To |
|---|---|---|---|---|
| | | | | |

| RESIDENCY : Hospital/Facility | Location (City/State) | Type | From | To |
|---|---|---|---|---|
| | | | | |

| RESIDENCY: Hospital/Facility | Location (City/State) | Type | From | To |
|---|---|---|---|---|
| | | | | |

| FELLOWSHIP: Hospital/Facility | Location (City/State) | Type | From | To |
|---|---|---|---|---|
| | | | | |

**IMPORTANT**: IF APPLICANT IS BOARD CERTIFIED, PLEASE PROVIDE COPY OF BOARD CERTIFICATE(S). OTHERWISE, PLEASE PROVIDE COPY OF CERTIFICATE(S) OF COMPLETION OF POSTGRADUATE TRAINING.

***PROCEED TO BLOCK 6 SUBMIT DOCUMENTATION***

**QME FORM 100 (Rev. 1/2006)**

**BLOCK 4 (FOR DCs ONLY)**
**NOTE: APPLICANT MUST MEET ONE OF THE FOLLOWING REQUIREMENTS**

| | Yes | No |
|---|---|---|
| 1) I am certified in California workers compensation evaluation by either a California professional chiropractic association or an accredited California college recognized by the Administrative Director (i.e. IDE Certificate (min. 44 hrs. eff. 4/15/99)). | ☐ | ☐ |
| 2) I have completed a chiropractic postgraduate specialty program of a minimum of 300 hours taught by a school or college recognized by the Administrative Director, the Board of Chiropractic Examiners and the Council on Chiropractic Education. | ☐ | ☐ |

**PROCEED TO BLOCK 7 SUBMIT DOCUMENTATION**

**BLOCK 5 (FOR Ph.Ds, Psy.Ds AND Ed.Ds ONLY)**
NOTE: APPLICANT MUST MEET ONE OF THE FOLLOWING REQUIREMENTS

| | Yes | No |
|---|---|---|
| 1) I am board certified in clinical psychology by the American Board of Professional Psychology, Inc. | ☐ | ☐ |
| 2) I have a doctoral degree in psychology, or a doctoral degree deemed equivalent for licensure by the Board of Psychology, from a university or professional school recognized by the Administrative Director and have not less than five years postdoctoral experience in the diagnosis and treatment of emotional and mental disorders. | ☐ | ☐ |
| 3) I have not less than five years postdoctoral experience in the diagnosis and treatment of emotional and mental disorders and I have served as an Agreed Medical Evaluator (AME) on eight or more occasions prior to January 1, 1990. (Please provide documentation of 8 AMEs, i.e. AME cover letters, first page of the reports, or a sworn statement made under penalty of perjury). | ☐ | ☐ |

**PROCEED TO BLOCK 7 SUBMIT DOCUMENTATION**

**BLOCK 6 (FOR MDs AND DOs ONLY)**
**NOTE: APPLICANT MUST MEET ONE OF THE FOLLOWING REQUIREMENTS**

| | Yes | No |
|---|---|---|
| 1) I am board certified in the specialty for which I am applying to become a QME by a board recognized by the Administrative Director and the Medical Board of California or the Osteopathic Medical Board of California. | ☐ | ☐ |
| 2) I completed postgraduate training in the specialty at an institution recognized by the ACGME or the American Osteopathic Association. | ☐ | ☐ |
| 3) I have qualifications that the Administrative Director and the Medical Board of California or the Osteopathic Medical Board of California both deem to be equivalent to board certification in a specialty. (Please submit documentation from the Medical Board). | ☐ | ☐ |

***PROCEED TO BLOCK 7*** **SUBMIT DOCUMENTATION**

**BLOCK 7 (FOR ALL APPLICANTS)**

NOTE: APPLICANT MUST MEET ONE OF THE FOLLOWING REQUIREMENTS

| | TRUE | FALSE |
|---|---|---|
| 1) I devote at least one-third of my total practice time to providing direct medical treatment (Direct Medical Treatment is that special phase of the health care provider-patient relationship which (1) attempts to clinically diagnose and alter or modify the expression of a non-industrial illness, injury or pathological condition; or (2) attempts to cure or relieve the effects of an industrial injury.) | ☐ | ☐ |
| 2) I have served as an Agreed Medical Evaluator (AME) on eight (8) or more occasions in the 12 months prior to submitting this application. (Submit documentation of 8 AMEs, i.e. AME cover letters, first page of reports or a sworn statement made under penalty of perjury.) | ☐ | ☐ |

**PROCEED TO BLOCK 8**

**BLOCK 8 (FOR ALL APPLICANTS)**

PLEASE INDICATE SPECIALTY(IES) FOR WHICH YOU ARE APPLYING TO DO QME EXAMS (USE ENCLOSED SPECIALTY CODE LIST)

Professional practice specialty code: ☐ Professional practice specialty code: ☐ Professional practice specialty code: ☐

**Reminder: For MDs & DOs, a copy of your Board Certification or documentation of completion of a training program accredited by the American College of Graduate Medical Education or the American Osteopathic Association must be submitted. For DCs, a certificate from postgraduate specialty diplomate program must be submitted for each specialty.**

***PROCEED TO BLOCK 9***

**BLOCK 9 (FOR ALL APPLICANTS, IF COMPLETED)**

**I have completed a disability evaluation report writing course approved by the Administrative Director.**

Course: _____ Dateof Course: _____

**PROCEED TO BLOCK 10**

**BLOCK 10 (FOR ALL APPLICANTS)**

AFFIRMATIONS: Initialling each box affirms that you have read and agree to each of the statements.

**INITIAL EACH BOX**

License Status

A. **My license to practice medicine is active and is neither restricted nor encumbered by suspension, interim suspension or probation. I certify that I have not been convicted of either a misdemeanor or felony related to my practice or a crime of moral turpitude.** ☐

B. **I agree to notify the Administrative Director if my license to practice medicine is placed on suspension, interim suspension, probation or is restricted by my licensing agency. I further agree to notify the Administrative Director if I am convicted of a misdemeanor or felony related to my practice or a crime of moral turpitude. (Do not initial if your statement is untrue, attach an explanation on a seperate piece of paper.) I understand that the Administrative Director may deny my application or conditionally accept my application if my license is on probation with my licensing authority.** ☐

Financial Interest

C. **I agree that I shall abide by all Administrative Director regulations. I will not refer patients to facilities in which I or my family members have a financial interest , except as permitted by law. I agree I shall not offer, deliver, receive or accept any rebate, refund, commission, preference, patronage, dividend, discount or other consideration, whether in the form of money or otherwise, as compensation or inducement for any referred evaluation or consultation. I agree not to solicit to provide medical treatment to an injured employee for any injury for which I have done a QME evaluation. I have not performed a** QME evaluation prior to appointment as a QME by the Administrative Director . ☐

**Cont'd of BLOCK 10 (FOR ALL APPLICANTS)**
**Verification**

I have used all reasonable diligence in preparing and completing this application. I have reviewed this completed application and to the best of my knowledge the information contained herein and in the attached supporting documentation is true, correct and complete. Failure to provide truthful information shall result in denial of applicants appointment and/or disciplinary action. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

| | | | | | |
|---|---|---|---|---|---|
| Executed on | (MM/DD/YY) | at | County | CA | Applicant's Signature |

**IMPORTANT: Your application for appointment as a QME shall be returned if it is incomplete. Please check:**

1) That your application is fully completed, dated and signed with an original signature. We will not accept faxed applications. Please also submit statement of citizenship form.
2) All necessary documentation is attached:

a) All applicants - A Copy of your current California Professional License.

b) MDs, DOs - A copy of your board certification or certificate(s) of completion of a residency training program accredited by the American College of Graduate Medical Education or the American Osteopathic Association. Please provide for all specialties in which you are requesting appointment to perform QME exams.

c) DCs - A copy of your certificate in California Workers' Compensation Evaluation or a copy of your certificate from postgraduate specialty diplomate program. For DC specialties other than DCH (e.g. DCR) a copy of your certificate of completion of 300 hours from postgraduate specialty diplomate program is required.

d) Ph.D, Psy.D and Ed.D- A copy of your professional diploma(s). Copy of board certification, if appropriate.

e) ALL OTHERS - A copy of your professional diploma(s).

f) A copy of completion certificate from the report writing course required by Title 8 CCR §11.5, if completed.

**This document must be submitted prior to obtaining your appointment as a QME.**

## A PUBLIC DOCUMENT

PRIVACY NOTICE - The Information Practices Act of 1977 and the Federal Privacy Act require the Administrative Director to provide the following notice to individuals who are asked by a governmental entity to supply information for appointment as a Qualified Medical Evaluator (QME).

The principal purpose for requesting information from QMEs is to administer the QME program within the California workers' compensation system. Additional information may be requested if your application is denied and/or a disciplinary action is taken.

The California Labor Code requires every QME physician to meet certain statutory requirements. Physicians are required by the Labor Code to provide: name; business address/addresses; professional education; training; license number; year entered practice and other requirements deemed necessary by the Administrative Director. It is mandatory to furnish all the appropriate information requested by the Administrative Director. Failure to provide all of the requested information may result in the denial of the application.

As authorized by law, information furnished on this form may be given to: you, upon request; the public, pursuant to the Public Records Act; a governmental entity, when required by state or federal law; to any person, pursuant to a subpoena or court order or pursuant to any other exception in Civil Code § 1798.24.

An individual has a right of access to records containing his/her personal information that are maintained by the Administrative Director. An individual may also amend, correct, or dispute information in such personal records (Civil Code § 1798.34-1798.37).

Requests should be sent to:

Division of Workers' Compensation-Medical Unit
P.O. Box 420603
San Francisco, CA 94142-0603
Tel: (510) 286-3700 or 1(800) 794-6900
Fax: (510) 622-3467; E-mail: www.dir.ca.gov

You may request a copy of the Division of Workers' Compensation policy and procedures for inspection of records at the above address. Copies of the procedures and all records are ten cents ($0.10) per page, payable in advance. (Civil Code § 1798.33).

For Use on the QME Reappointment Application Form

IMPORTANT: PLEASE USE THREE LETTER SPECIALTY CODE WHEN COMPLETING BLOCK 8 OF APPLICATION FORM

*MD/DO Specialty Codes*

| | |
|---|---|
| MAI | Allergy and Immunology |
| MAA | Anesthesiology |
| MRS | Colon & Rectal Surgery |
| MDE | Dermatology |
| MEM | Emergency Medicine |
| MFP | Family Practice – MD |
| OFP | Family Practice – DO |
| OFM | Family Practice – DO – Including Osteopathic Manipulation |
| MPM | General Preventive Medicine |
| MOH | Hand–Orthopaedic Surgery |
| MPH | Hand–Plastic Surgery |
| MSH | Hand–Surgery |
| MMM | Internal Medicine |
| MMV | Internal Medicine–Cardiovascular Disease |
| MME | Internal Medicine–Endocrinology Diabetes and Metabolism |
| MMG | Internal Medicine–Gastroenterology |
| MMH | Internal Medicine–Hematology |
| MMI | Internal Medicine–Infectious Disease |
| MMO | Internal Medicine–Medical Oncology |
| MMN | Internal Medicine–Nephrology |
| MMP | Internal Medicine–Pulmonary Disease |
| MMR | Internal Medicine–Rheumatology |
| MOQ | Medicine – Otherwise Qualified |
| MPB | Neurological Surgery–Including Back |
| MPN | Neurology |
| MNS | Neurological Surgery |
| MNM | Nuclear Medicine |
| MOG | Obstetrics and Gynecology |
| MPO | Occupational Medicine |
| MOP | Ophthalmology |
| MOS | Orthopaedic Surgery |
| MOB | Orthopaedic Surgery–Including Back |
| MTO | Otolaryngology |
| MAP | Pain Management–Anesthesiology |
| MPP | Pain Management–Pain Medicine |
| MHA | Pathology |

*Non–MD/DO Specialty Codes*

*denotes a doctor of chiropractic who has completed a chiropractic post–graduate specialty program

| | |
|---|---|
| ACA | Acupuncture |
| DCH | Chiropractic |
| DCN | Chiropractic–Neurology* |
| DCO | Chiropractic –Orthopaedic* |
| DCR | Chiropractic – Radiology* |
| DCS | Chiropractic – Sports Medicine* |
| DCT | Chiropractic – Rehabilitiation* |
| DEN | Dentistry |
| OPT | Optometry |
| POD | Podiatry |
| PSY | Psychology |
| PSN | Psychology–Clinical Neuropsychology |

*MD/DO Specialty Codes*

| | |
|---|---|
| MEP | Pediatrics |
| MPR | Physical Medicine & Rehabilitation |
| MPS | Plastic Surgery |
| MPD | Psychiatry |
| MRY | Radiology |
| MSY | Surgery |
| MSG | Surgery–General Vascular |
| MTS | Thoracic Surgery |
| MPT | Toxicology–Occupational Medicine |
| MET | Toxicology–Emergency Medicine |
| MUU | Urology |

Attachment to Form 100
(Rev. 1/2006)

HISTORY

1. Renumbering of former article 10 to new article 15, new article 10 (sections 100–104) and new section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.
2. Amendment filed 8–23–2001; operative 8–23–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 34).
3. Change without regulatory effect amending section filed 5–2–2002 pursuant to section 100, title 1, California Code of Regulations (Register 2002, No. 18).
4. Change without regulatory effect amending section filed 1–27–2006 pursuant to section 100, title 1, California Code of Regulations (Register 2006, No. 4).

**§ 101. The Alien Application Form.**

STATE OF CALIFORNIA INDUSTRIAL MEDICAL COUNCIL

FORM 101

## STATEMENT OF CITIZENSHIP, ALIENAGE, AND IMMIGRATION STATUS FOR STATE PUBLIC BENEFITS STATEMENT

*Read attached State Public Benefits Information (10.5) before completing this Statement.*

| PRINT NAME OF APPLICANT (the applicant is the person who wants QME Certification | Date |
|---|---|
| PRINT NAME OF PERSON ACTING FOR APPLICANT, IF ANY | Relationship to Applicant |

STATE PUBLIC BENEFITS TO CITIZENS AND ALIENS

Citizens and nationals of the United States who meet all eligibility requirements may receive QME certification and must fill out Sections A and D.

Aliens who meet all eligibility requirements may also receive QME certification and must complete Sections A, B, C, or D of this form.

### SECTION A - CITIZENSHIP/IMMIGRATION STATUS DECLARATION

1. Are you a citizen or national of the United States? ☐ Yes ☐ No

   If, YES, where were you born? (List city, state (or equivalent), and country.)

   _____ (City)

   _____ (State or equivalent)

   _____ (Country)

2. To establish proof of citizenship or nationality, plese submit a legible and unaltered copy of one of the documents on List A.

IF YOU ARE A CITIZEN OR NATIONAL OF THE UNITED STATES, GO DIRECTLY TO SECTION D
IF YOU ARE AN ALIEN, PLEASE COMPLETE SECTION B, OR IF APPLICABLE, SECTION C.

### SECTION B -ALIEN STATUS DECLARATION

**NOTE:** Please indicate your alien status below, and submit documents evidencing such status. The alien status docuemnts for each category as set forth on List B are the most commonly used documents that the United States Immigration and Naturalizaton Service (INS) provides to aliens in those categories. You can provide other acceptable evidence of your alien status even if not listed below:

☐ 1. An alien lawfully admitted for permanent residence under the Immigration and Naturalization Act (INA).

☐ 2. An alien who is granted asylum under section 208 of the INA

☐ 3. A refugee admitted to the United States under section 207 of the INA.

☐ 4. An alien whose deportation is being withheld under section 243(h)of the INA

☐ 5. An alien who is granted conditional entry under section 203(a)(7) of the INA as in effect prior to 9/30/96 or Section 241(b)(3) of such Act as amended by Section 305(a) of division C of Pub. Law 104-208.

☐ 6. An alien paroled into the United Status for at least one year under section 212 (d)(5) of the INA.

☐ 7. An alien who is a Cuban or Haitian entrant as defined in Section 501(e) o fhte Refugee Education Assitance Act of 1980.

☐ 8. An alien not in categories 1 through 7 who has been admitted to the United States for a limited period of time (a non-immigrant). Non-immigrant). Non-immigrants are persons who have temporary status for a specific purpose. (Evidence includes INS Form I-94 showing this status.)

☐ 9. An alien not in categories 1 through 8 who has been admitted to the United States for a limited period of time (a non-immigrant). Non-immigrants are persons who have temporary status for a specific purpose. (Evidence includes INS Form I-94 showing this status.)

Form 101 Rev. 3/01/00

## SECTION C - DECLARATION FOR BATTERED ALIENS

IMPORTANT: Complete this section if the applicant or the applicant's child or the applicant child's parent has been battered or subjected to extreme cruelty in the United States.

☐ 1. Has the INS or the EOIR granted a petition or application filed by or on behalf of the applicant, the applicant's child, or the applicant's child's parent under the INA or found that a pending petition sets forth a prima facie case? Evidence includes one of the documents on List B (attached hereto)

☐ 2. Has the applicant, the applicant's child, or child or the applicant child's parent been battered or subjected to extreme cruelty in the United States by a spouse or parent, or by a spouse's or parent's family member living in the same house where the spouse or parent consented to, or acquiesced in the battery or cruelty)?

## SECTION D - CITIZENSHIP/IMMIGRATION STATUS DECLARATION

***I declare under penalty of perjury under the laws of the State of California that the answers I have given are true and correct to the best of my knowledge.***

| Applicant's Signature | Date |
|---|---|
| Signature of Person Acting for Applicant | Date |



## List A

## ACCEPTABLE DOCUMENTS TO ESTABLISH U. S. CITIZENSHIP

**A. Primary Evidence**

A person who is a citizen or national of the United States as evidenced by one of the following:

◆ A birth certificate showing birth in one of the 50 States, District of Columbia, Puerto Rico (on or after January 13, 1941), Guam, the U.S. Virgin Islands (on or after January 17, 1917) , American Samoa, Swain's Island or Northern Mariana Islands, unless the person was born to foreign diplomats residing in the U.S.

NOTE: If the document shows that the individual was born in Puerto Rico, the U.S. Virgin Islands or the Northern Mariana Islands before these areas became part of the U. S., the individual may be a collectively naturalized citizen — see Paragraph C below.

◆ United States passport (except limited passports, which are issued for periods of less than five years);
◆ Report of birth abroad of a U.S. citizen (FS-240) (issued by the Department of State to U.S. citizens);
◆ Certificate of Naturalization (N-550 or N-570) (issued by the INS through a Federal or State court, or through administrative naturalization after December 1990 to individuals who are individually naturalized; the N-570 is a replacement certificate issued when the N-500 has been lost or mutilated or the individual's name has been changed);
◆ Certificate of Citizenship (N-560 or N-561) (issued by the INS to individuals who derive U.S. through a parent; the N-561 is a replacement certificate issued when the N-560 has lost or mutilated or the individual's name has been changed);
◆ United States Citizen Identification Card (issued by the INS until April 7, 1983 to U.S. citizens living near the Canadian or Mexican border who needed it for frequent border crossings)(formerly Form I-179, last issued in February 1974);
◆ Northern Mariana Identification Card (issued by the INS to a collectively naturalized citizen of the U.S. who was born in the Northern Mariana Islands before November 3, 1986);
◆ Statement provided by a U.S. consular officer certifying that the individual is a U.S. citizen (this is given to an individual born outside the U.S. who derives citizenship through a parent but does not have an FS-240, FS-545 or DS-1350); or
◆ American Indian Card with a classification code "KIC" and a statement on the back (identifying U.S. citizen members or the Texas Band of Kickapoos living near the U.S./Mexican border.

**B. Secondary Evidence**

If the applicant cannot present one of the documents listed in A above, the following may be relied upon to establish U.S. citizenship of nationality:

◆ Religious record recorded in one of the 50 States, District of Columbia, Puerto Rico (on or after January 13, 1941), Guam, the U.S. Virgin Islands (on or after January 17, 1917) , American Samoa, Swain's Island or Northern Mariana Islands (unless the person was born to foreign diplomats residing in such a jurisdiction) within three months after birth showing that the birth occurred in such jurisdiction and the date of birth or the individual's age at the time the record was made;
◆ Evidence of civil service employment by the U.S. government before June 1, 1976;
◆ Early school records (preferably from the first school) showing the date of admission to the school, the child's date and place of birth, and the name(s) and place(s) of birth of the parent(s);
◆ Census record showing name, U.S. citizenship or a U.S. place of birth, and date of birth or age of applicant;
◆ Adoption Finalization Papers showing the child's name and place of birth in one of the 50 State, District of Columbia, Puerto Rico (on or after January 13, 1941), Guam, the U.S. Virgin Islands (on or after January 17, 1917) , American Samoa, Swain's Island or Northern Mariana Islands (unless the person was born to foreign diplomats residing in such a jurisdiction) or, where or adoption is not finalized and the State or other jurisdiction listed above in which the child was born will not release a birth certificate prior to final adoption, a statement from a state-approved adoption agency showing the child's name and place of birth in one of such jurisdictions (NOTE: the source of the information must be an original birth certificate and must be indicated in the statement);or
◆ Any other document that establishes a U.S. place of birth or in some way indicates U.S. citizenship (e.g., a contemporaneous hospital record of birth in that hospital in one of the 50 State, District of Columbia, Puerto Rico (on or after January 13, 1941), Guam, the U.S. Virgin Islands (on or after January 17, 1917) , American Samoa, Swain's Island or Northern Mariana Islands (unless the person was born to foreign diplomats residing in such a jurisdiction .

**C. Collective Naturalization**

If the applicant cannot present one of the documents listed in A or B above, the following will establish U.S. citizenship for collectively naturalized individuals:

**Puerto Rico:**

◆ Evidence of birth in Puerto Rico on or after April 11, 1899 and the applicant's statement that he or she was residing in the U.S., a U.S. possession or Puerto Rico on January 13, 1941; or
◆ Evidence that the applicant was a Puerto Rican citizen and the applicant's statement that he or she was residing in Puerto Rico on March 1, 1917 and that he or she did not take an oath of allegiance to Spain.

**U.S. Virgin Islands:**

◆ Evidence of birth in the U.S. Virgin Islands, and the applicant's statement of residence in the U.S., a possession or the U.S. Virgin Islands on February 25, 1927;
◆ The applicant's statement indicating resident in the U.S. Virgin Islands as a Danish citizen on January 17, 1917 and residence in the U.S., a U.S. possession or the U.S. Virgin Islands on February 25, 1927, and that he or she did not make a declaration to maintain Danish citizenship; or
◆ Evidence of birth in the U.S. Virgin Islands and the applicant's statement indicating residence in the U.S., a U.S. possession or territory or the Canal Zone on June 28, 1932.

**Northern Mariana islands (NMI) (formerly part of the Trust Territory of the Pacific Islands(TTPI):**

◆ Evidence of birth in the NMI, TTPI citizenship and residence in the NMI, the U.S., or a U.S. territory or possession on November 3, 1986 (NMI local time) and the applicant's statement that he or she did not owe allegiance to a foreign state on November 4, 1986 (NMI local time);

◆ Evidence of TTPI citizenship, continuous residence in the NMI since before November 3, 1981 (NMI local time), voter registration prior to January 1, 1975 and the applicant's statement that he or she did not owe allegiance to a foreign state on November 4, 1986 (NMI local time);

◆ Evidence of continuous domicile in the NMI since before January 1, 1974 and the applicant's statement that he or she did not owe allegiance to a foreign state on November 4, 1986 (NMI local time). NOTE: If a person entered the NMI as a nonimmigrant and lived in the NMI since January 1, 1974, this does not constitute continuous domicile and the individual is not a U.S. citizen.

*D. Derivative Citizenship*

If the applicant cannot present one of the documents listed in A or B above, you should make a determination of derivative U.S. citizenship in the following situations:

Applicant born abroad to two U.S. citizen parents:

◆ Evidence of the U.S. citizenship of the parents and the relationship of the applicant to the parents, and evidence that at least one parent resided in the U.S. or an outlying possession prior to the applicant's birth.

◆ Applicant born abroad to a U.S. citizen parent and a U.S. non-citizen national parent:

◆ Evidence that one parent is a U.S. citizen and that the other is a U.S. non-citizen national, evidence of the relationship of the applicant to the U.S. citizen parent, and evidence that the U.S. citizen parent resided in the U.S., a U.S. possession, American Samoa or Swain's Island for a period of at least one year prior to the applicant's birth.

Applicant born out of wedlock abroad to a U.S. citizen mother:

◆ Evidence of the U.S. citizenship of the mother, evidence of the relationship to the applicant and, for births on or before December 24, 1952, evidence that the mother resided in the U.S. prior to the applicant's birth or, for births after December 24, 1952, evidence that the mother had resided, prior to the child's birth, in the U.S. or a U.S. possession for a period of one year.

Applicant born in the Canal Zone or the Republic of Panama:

◆ A birth certificate showing birth in the Canal Zone on or after February 26, 1904 and before October 1, 1979 and evidence that one parent was a U.S. citizen at the time of the applicant's birth; or

◆ A birth certificate showing birth in the Republic of Panama on or after February 26, 1904 and before October 1, 1979 and evidence that at least one parent was a U.S. citizen and employed by the U.S. government of the Panama Railroad Company or its successor in title.

All other situations where an applicant claims to have a U.S. citizen parent and an alien parent, or claims to fall within one of the above categories but is unable to present the listed documentation:

◆ If the applicant is in the U.S., refer him or her to the local INS office for determination of U.S. citizenship;

◆ If the applicant is outside the U.S., refer him or her to the State Department for a U.S. citizenship determination.

E. Adoption of Foreign-Born Child by U.S. Citizen

◆ If the birth certificate shows a foreign place of birth and the applicant cannot be determined to be a naturalized citizen under any of the above criteria, obtain other evidence of U.S. citizenship;

Since foreign-born adopted children do not automatically acquire U.S. citizenship by virtue of adoption by U.S. citizens, refer the applicant to the local INS district office for a determination of U.S. citizenship if the applicant provides no evidence of U.S. citizenship.

F. U.S. Citizenship By Marriage

A woman acquired U.S. citizenship through marriage to a U.S. citizen before September 22, 1922. Ask for: Evidence of U.S. citizenship of the husband, and evidence showing the marriage occurred before September 22,1922.

NOTE: If the husband was an alien at the time of the marriage, and became naturalized before September 22, 1922, the wife also acquired naturalized citizenship. If the marriage terminated, with the wife maintained her U.S. citizenship if she was residing in the U.S. at that time and continued to reside in the U.S.

## B List B

## ACCEPTABLE DOCUMENTS TO ESTABLISH ALIEN STATUS

A. Documentation Evidencing an Approved Petition or Application

◆ INS Form I-551("Resident Alien Card" or "Alien Registration Card", commonly known as a "green card") with one of the following INS class of admission ("COA") codes printed on the front of a white card or the back of a pink card:, AR1, AR6, C20 through C29, CF1, CF2, CR1, CR2, CR6, CR7, CX1, through CX3, CX6 through CX8, F20 through F29, FX1 through FX3, FX6 through FX8, IF1, IF2, IR1 through IR4, IR6 through IR9, IW1, IW2, IW6, IW7, MR6, MR7, P21 through P23, OR P26 through P28.

If an alien claiming approved status presents a code different than those enumerated, or if you cannot determine the class of admission from the I-551 stamp, you shall file INS Form G-845, and the G-845 Supplement (mark item six on the Supplement)(attached hereto) along with a copy of the document(s) presented, with the local INS office in order to determine whether the applicant gained his or her status because he or she was the spouse, widow, or child of a U.S. citizen or the spouse, child, or unmarried son or daughter of an law permanent resident.

◆ INS Form I-551 with one of the following COA codes stamped on the lower left side of the back of a pink card: IB1 through IB3, IB6 through IB8, B11, B12, B16, B17, B20 through B29, B31 through B33, B36 through B38, BX1 through BX3, or BX6 through BX8.
◆ INS Form I-551 with COA code Z13.
◆ Unexpired Temporary I-551 stamp in foreign passport or on INS Form I-94 with one of the COA codes specified in the Subsections (1) - (3), above.
◆ INS Form indicating approval of an INS I-130 petition (only I-130 petitions describing the following relationships may be accepted: husbands or wives of U.S. citizens of LPRs, unmarried children under 21 years old of U.S. citizens or LPRs, or unmarried children 21 or older of LPRs), or approval of an I-360 petition (only I-360 approvals based on status as a widow/widower of a U.S. citizen or as a self-petitioning spouse or child of an abusive U.S. citizen or LPR may be accepted).
◆ A final order of an Immigration Judge or the Board of Immigration Appeals granting suspension of deportation under Section 244(a)(3) of the INA as in effect prior to April 1, 1997, or cancellation of removal under Section 240A(b)(2) of the INA.

B. Documentation Demonstrating that the Applicant has Established a Prima Facie Case
◆ NS Form I-797 indicating that the applicant has established a prima facie case; or
◆ An immigration court of Board of Immigration Appeals order indicating that the applicant has established a prima facie case for suspension of deportation under INA Section 244(a)(3) as in effect prior to April 1, 1997, or cancellation of removal under Section 240A(b)(2) of the INA.

C. Documentation Indicating that the Applicant has Filed a Petition or that a Petition has been Filed on the Applicant's Behalf, as Applicable, but with no Evidence of Approval of the Petition or Establishment of a Prima Facie Case.

The IMC shall determine from the documentation when the petition was filed and take the actions set forth below:

◆ Applicants with petitions filed before June 7, 1997 should have an INS Form I-797 indicating filing of the I-360 petition by "self-petitioning spouse [or child] of abusive U.S.C. or LPR, "a file-stamped copy of the petition , or another document demonstrating filing (including a cash register or computer-generated receipt indicating filing of Form I-360).
◆ Applicants with petitions filed after June 7, 1997 should have an INS Form I-797 indicating filing of the I-360 petition.

D. Documentation Indicating that the Applicant have filed a Petition or that a Petition was filed on His or Her Behalf, as Applicable

The following must indicate that the applicant is the widow/widower of a U.S. citizen, the husband of wife of a U.S. Citizen or LPR, the unmarried child under age 21 of a U.S. citizen or LPR, or the unmarried child age 21 or older of an LPR):
◆ For aliens on whose behalf a petition has been filed: INS Form I-797 indicating filing of an INS I-130 petition, a file-stamped copy of the petition, or another document demonstrating filing (including a cash register or computer-generated receipt indicating filing of Form I-130) (a sample copy of Form I-130 is attached to this Exhibit).
◆ For self-petitioning widows or widowers: a file-stamped copy of the INS I-360 petition, or another document demonstrating filing (including a cash register or computer-generated receipt indicating filing of Form I-360).

E. Documentation Indicating that the INS has Initiated Deportation of Removal Proceedings in which Relief may be Available.

◆ an "Order to Show Cause";
◆ a "Notice to Appear"; or
◆ a "Notice of Hearing in Deportation Proceedings."

F. Minimal or no Documentation Regarding the Claimed Filing

If the applicant has some documentation, but is insufficient to demonstrate filing, establishment of prima facie case or approval of a petition, fax the INS Request Form on your agency letterhead, as well as a copy of any document(s) provided by the applicant, to the INS Vermont Service Center in order to determine the applicant's status. If the applicant has no documentation, but is certain that a petition has been filed by his or her spouse or parent, fax the INS Request Form to the INS Vermont Service Center.

*NOTE:*

Lists A and B contain the most common documents which can be used to establish U. S. Citizenship or legal alien status. For a complete list of acceptable documents, please refer to State Public Benefits (Comprehensive List)(IMC 10.1), which may be obtained from the IMC's website (www.dir.ca.gov) or by calling or writing to the Industrial Medical Council.

Mail to:

Industrial Medical Council
P. O. Box 8888
San Francisco, CA 94128-8888
(800) 794-6900

Form 101 Rev. 3/01/00

STATE OF CALIFORNIA INDUSTRIAL MEDICAL COUNCIL

# STATEMENT OF CITIZENSHIP, ALIENAGE, AND IMMIGRATION STATUS FOR STATE PUBLIC BENEFITS STATEMENT

FORM 101

## GENERAL INFORMATION

### *What to complete*

- Citizens and nationals of the United States who meet all eligibility requirements may receive "public benefits" as defined below and in Section 2718, Title 10, California Code of Regulations. These individuals must fill out Sections I, II and IV of State Public Benefits Statement (IMC 101) to qualify.
- Aliens who meet all eligibility requirements may also receive benefits as defined in Section 2718 and must complete Sections I through IV of State Public Benefits Statement (IMC 101).

### *What to submit*

- Completed IMC 101 with your original signature. Photocopies and fax copies are not acceptable.
- Supporting documents(s)/ Note: List A and B on IMC 101 are the most common acceptable documents. The State Public Benefits (Comprehensive List) (IMC 101 contains a complete list of acceptable documents.

### *Definitions*

- National -- An individual born in an outlying possession of the United States on or after the date of formal acquistion of such possession.

## VITAL STATISTICS OFFICES

*Call for information as to how to obtain a "full record" certified copy of a birth certificate from your state of birth or territory

| | |
|---|---|
| Alabama | (334) 613-5418 |
| Alaska | (907) 465-3391 |
| Arizona | (602) 255-3260 |
| Arkansas | (501) 661-2336 |
| California | (916) 445-2684 |
| Colorado | (303) 756-4464 |
| Connecticut | (860) 509-7897 |
| Delaware | (302) 739-4721 |
| District of Columbia | (202) 645-5962 |
| Florida | (904) 487-3160 |
| Georgia | (404) 656-4900 |
| Hawaii | (808) 586-4533 |
| Idaho | (208) 334-5988 |
| Illinois | (217) 782-6555 |
| Indiana | (317) 233-2700 |
| Iowa | (515) 281-4944 |
| Kansas | (913) 296-1400 |
| Kentucky | (502) 564-4212 |
| Louisiana | (504) 922-1184 |
| Maine | (207) 287-3184 |
| Maryland | (800) 832-3277 |
| Massachusetts | (617) 753-8600 |
| Michigan | (517) 335-8656 |
| Minnesota | (612) 623-5121 |
| Mississippi | (601) 960-7981 |
| Missouri | (314) 658-1134 |
| Montana | (406) 444-4228 |
| Nebraska | (402) 471-2871 |
| Nevada | (702) 687-4480 |
| New Hampshire | (603) 271-4654 |
| New Jersey | (609) 292-4087 |
| New Mexico | (505) 827-0121 |
| New York | (518) 474-3077 |
| North Carolina | (919) 733-3526 |
| North Dakota | (701) 328-2360 |
| Ohio | (614) 466-2531 |
| Oklahoma | (405) 271-4040 |
| Oregon | (503) 731-4095 |
| Pennsylvania | (412) 656-3126 |
| Rhode Island | (401) 222-2811 |
| South Carolina | (803) 734-4830 |
| South Dakota | (605) 773-3355 |
| Tennessee | (615) 741-1763 |
| Texas | (512) 458-7111 |
| Utah | (801) 538-6105 |
| Vermont | (802) 863-7275 |
| Virginia | (804) 225-5000 |
| Washington | (360) 753-5936 |
| West Virginia | (304) 558-2931 |
| Wisconsin | (608) 266-1371 |
| Wyoming | (307) 777-7591 |

### *Territories & U. S. Possessions*

| | |
|---|---|
| American Samoa | (684) 633-1222 |
| Guam | 001-671-734-7292 |
| Puerto Rico | (809) 728-7980 ext. 238 |
| Virgin Island | |
| St.Croix | (890) 773-4050 |
| St. Thomas | (890) 774-1734 |
| Commonwealth of the Northern Mariana Islands | (670) 234-6401 |
| Canal Zone | 1-800-272-7854 |

HISTORY

1. New section filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

For prior history see Register 94, No. 31.

## § 102. The Application for QME Competency Examination Form.

STATE OF CALIFORNIA — ARNOLD SCHWARZENEGGER, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**DIVISION OF WORKERS' COMP-MEDICAL UNIT**
1515 Clay Street, 17th Floor
Oakland, CA 94612
Tel: (510) 286-3700 or (800) 794-6900

ADDRESS REPLY TO:
P.O. Box 420603
San Francisco, CA 94142-0603

REGISTRATION
FOR
QME COMPETENCY EXAMINATION
(DATE)

PLEASE COMPLETE THIS REGISTRATION FORM AND RETURN POSTMARKED NO LATER THAN (Date). THE DIVISION OF WORKERS' COMPENSATION (DWC) IS NOT RESPONSIBLE FOR LATE OR LOST APPLICATIONS. PLEASE SEND YOUR REGISTRATION AND APPLICATION FORMS TO:

DIVISION OF WORKERS' COMPENSATION — ATTN: EXAM UNIT

| MAILING ADDRESS: | STREET ADDRESS FOR EXPRESS DELIVERY: |
|---|---|
| P.O. BOX 420603 | 1515 CLAY STREET 17TH FLR. |
| SAN FRANCISCO, CA 94142-0603 | OAKLAND, CA 94612 |

NAME:_____,_____,_____,_____
LAST FIRST M.I. JR/SR.

ADDRESS: (street address)_____

(city)_____, CA (ZIP)_____(+4)_____

PHONE NUMBER: ( ____ ) _____ - _____ FAX NUMBER: ( ____ ) _____ - _____

PHYSICIAN'S LICENSE NUMBER:_____-_____
Prefix Number

EXAM DATE & TIME: (Date)

Registration begins at 9:30 a.m.
Examination begins at 10:00 a.m.

PREFERRED EXAM LOCATION: (TEST SITE WILL BE INDICATED ON YOUR CONFIRMATION LETTER FROM CPS.)

☐ *Northern California* ☐ *Southern California*

**DO YOU HAVE ANY NEED FOR ACCOMMODATIONS DUE TO A DISABILITY OR RELIGIOUS CONFLICT?**

☐ *No* ☐ *Yes (Please see the Special Administration Procedures at the back of this page.)*

AFFIRMATIONS and VERIFICATION
I have used all reasonable diligence in preparing and completing this application. I have reviewed this completed application and to the best of my knowledge the information contained herein and in the attached supporting documentation is true, correct and complete. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.
I understand that I must keep my license to practice active and that it currently is active. I certify that I am not currently on probation with my licensing board nor on any court-ordered probation. I certify I will notify the DWC of any of the following events: a) change in my license status; b) any past or future conviction related to the conduct of my practice or for any crime of moral turpitude; and c) upon being placed on probation by my licensing board or by any court-ordered probation.
I certify that all the information and supporting documentation which I have previously submitted to the DWC with earlier QME application(s) is bona fide, true and correct.

Executed on:_____ at_____ _____
mm/dd/yy County & State Applicant's Signature

*(OVER)*

REGISTERING FOR SPECIAL ADMINISTRATION PROCEDURES

Examinee with a Disabling Condition or Religious Conflict

Special administration arrangements can be provided for examinees who, due to a disability or religious conflict, would not be able to take the test under standard conditions. Requests for special arrangements must be made by the REGULAR REGISTRATION DEADLINE. It may not be possible to honor requests for special testing arrangements received after the regular registration deadline.

Individuals whose religious convictions prohibit them from taking tests on Saturdays or religious holidays may request a special test administration.

All of the following must be submitted if special arrangements are needed due to a disability:

- a letter from you describing the condition and the specific special arrangements requested, and
- a completed registration form.

YOUR PROFESSIONAL LICENSE NUMBER AND TELEPHONE NUMBER MUST APPEAR ON ALL CORRESPONDENCE.

If you need special facilities (e.g. wheelchair accessible building or restrooms), please notify by letter to Cooperative Personnel Services (CPS) at 241 Lathrop Way, Sacramento, CA 95815. In this case, it is not necessary to submit any medical documentation.

Special arrangements for the following conditions can be accommodated at ALL test sites:

- special seating (e.g., due to pregnancy)
- wheelchair accessible facilities
- use of magnifying devices or large-print tests (e.g., for those with visual impairments).

Arrangements that require SUBSTANTIAL CHANGES IN TESTING CONDITIONS may be accommodated only at selected test sites. If it is necessary to relocate you to accommodate any other type of request, you will be contacted directly to discuss the arrangement.

QME Form 102
Rev. 1/2006

HISTORY

1. New section filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.
2. Change without regulatory effect amending section filed 1-27-2006 pursuant to section 100, title 1, California Code of Regulations (Register 2006, No. 4).

## § 103. The QME Fee Assessment Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737–2700 (1–800) 794–6900 Fax: (650) 737–2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128–8888



<date>
Fee Period: <start> – <end>
License Number: <license #>

Dear Dr.<doctor's name>:

Pursuant to Labor Code § 139.2(n) and 8 CCR, § 18, the Industrial Medical Council requires all physicians appointed or reappointed as Qualified Medical Evaluators (QMEs) to pay an annual fee. The QME fee is non–refundable.

**$250 FEE**

QMEs who have conducted 25 or more comprehensive medical – legal evaluations in the twelve months prior to assessment of the fee. All evaluations performed as a Qualified Medical Evaluator, Agreed Medical Evaluator, and Independent Medical Evaluator must be counted for the purpose of fee assessment (8 CCR §§ 16, 17).

**$125 FEE**

QMEs who have conducted 11–24 comprehensive medical legal evaluations in the twelve months prior to assessment of the fee. All evaluations performed as a Qualified Medical Evaluator, Agreed Medical Evaluator, and Independent Medical Evaluator must be counted for the purpose of fee assessment (8 CCR §§ 16, 17).

**$110 FEE**

QMEs who have conducted 0–10 comprehensive medical legal evaluations in the twelve months prior to assessment of the fee. All evaluations performed as a Qualified Medical Evaluator, Agreed Medical Evaluator, and Independent Medical Evaluator must be counted for the purpose of fee assessment (8 CCR §§ 16, 17).

**ADDITIONAL LOCATIONS**

QMEs who perform evaluations at more than one medical office location are required to pay an additional $100 per location (8 CCR § 17).

Misrepresentation of the number of evaluations performed or the number of additional locations shall constitute grounds for disciplinary proceedings (8 CCR § 60).

Department of Industrial Relations
Industrial Medical Council

Location Fee Calculation Worksheet

<doctor's name>
License Number: <license #>

Street, City, State, Zip Code, Phone No.

[ ]

[ ]

[ ]

Enter total Number of ALL location boxes checked --> _____

THIS SECTION MUST BE COMPLETED BY THE PHYSICIAN.

_____ $250 Primary fee for those physicians who have done 25 or more medical/legal evaluations.

_____ $125 Primary fee for those physicians who have done 11–24 medical/legal evaluations.

_____ $110 Primary fee for those physicians who have done 0–10 medical/legal evaluations.

Based on the amount of primary fee I have paid, I hereby declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Physician's Signature_____ Date_____

IMC Form 103 Rev. 5/05/00

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.
2. Change without regulatory effect amending section filed 6–27–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 26).

§ 104. The Reappointment Application as Qualified Medical Evaluator Form.

## REAPPOINTMENT APPLICATION AS QUALIFIED MEDICAL EVALUATOR

For the Department of Industrial Relations
Industrial Medical Council
P. O. Box 8888
San Francisco, CA 94128-8888

**BLOCK 1 (FOR ALL APPLICANTS)** **PLEASE TYPE OR PRINT LEGIBLY**

***Please list your primary location.* DO NOT USE P. O. BOX. *Additional locations may be added when your fee assessment is paid.***

| LAST NAME | FIRST NAME | MI | JR/SR |
|---|---|---|---|
| | | | |

| BUSINESS ADDRESS FOR QME EVALUATIONS | CITY | ZIP + 4 |
|---|---|---|
| | | |

| MAILING ADDRESS FOR CORRESPONDENCE | CITY | ZIP + 4 |
|---|---|---|
| | | |

| (AREA CODE) PHONE NO. | CAL. PROFESSIONAL LICENSE NUMBER | EXPIRATION (MM/YY) |
|---|---|---|
| | | |

***PROCEED TO BLOCK 2***

**BLOCK 2 (FOR MDs AND DOs ONLY)**

| **NOTE: APPLICANT MUST MEET ONE OF THE FOLLOWING REQUIREMENTS** | **Yes** | **No** |
|---|---|---|
| 1) I am board certified in the specialty for which I am applying to become a QME by a board recognized by the Council and the Medical Board of California or the Osteopathic Medical Board of California. Date board certification expires, if applicable_____. (If you became board certified after your last QME application, you must attach a copy of the certificate of board certification). | ☐ | ☐ |
| 2) I have completed the minimum requirements as defined by a specialty board recognized by the Council for postgraduate training in the specialty at an institution recognized by the ACGME or the American Osteopathic Association on _____. (Date Completed) | ☐ | ☐ |
| 3) I was an active qualified medical evaluator on June 30, 2000. | ☐ | ☐ |
| 4) I have qualifications that the Council and the Medical Board of California or the Osteopathic Medical Board of California both deem to be equivalent to board certification in a specialty. (Please submit documentation). | ☐ | ☐ |

***PROCEED TO BLOCK 3***

IMC FORM 104 Rev. 8/30/01

**BLOCK 3 (FOR ALL APPLICANTS) NOTE: APPLICANT MUST MEET ONE OF THE FOLLOWING REQUIREMENTS**

YES

1) I devote at least one-third of my total practice time to providing direct medical treatment ("Direct Medical Treatment" is that special phase of the health care provider-patient relationship which (a) attempts to clinically diagnose and alter or modify the expression of a non-industrial illness, injury or pathological condition; or (b) attempts to cure or relieve the effects of an industrial injury.) ☐

2) I have served as an Agreed Medical Evaluator (AME) on eight (8) or more occasions in the 12 months prior to submitting this application. (Submit documentation of 8 AME's, i.e. AME cover letters, first page of reports or a sworn statement made under penalty of perjury.) ☐

3) I am currently a salaried faculty member at an accredited university or college. I have a current license to practice as a physician and have been engaged in teaching, lecturing, published writing or medical research at that university or college in my area of specialty for not less than one-third of my professional time. My practice in the three consecutive years immediately preceding the time of application was not devoted solely to the forensic evaluation of disability. **(Please submit evidence of your faculty appointment.)** ☐

4) I am retired from active practice. I have a minimum of 25 years' experience in practice as a physician and currently I practice fewer than 10 hours per week on direct medical treatment as a physician. My practice in the three consecutive years immediately preceding the time of reappointment was not devoted solely to the forensic evaluation of disability. ☐

5) I am retired from active practice due to a documented medical or physical disability as defined pursuant to Gov't Code § 12926 and currently practicing in my specialty fewer than 10 hours per week. I have 10 years' experience in workers' compensation medical issues as a physician. My practice in the three consecutive years immediately preceding the time of application was not devoted solely to the forensic evaluation of disability. **(Please submit medical documentation of your disability.)** ☐

***PROCEED TO BLOCK 4***

**BLOCK 4 (FOR ALL APPLICANTS)**

PLEASE INDICATE SPECIALTY(IES) FOR WHICH YOU ARE APPLYING TO DO QME EXAMS (USE ENCLOSED SPECIALTY CODE LIST)

Professional practice specialty code: ☐ Professional practice specialty code: ☐ Professional practice specialty code: ☐

***PROCEED TO BLOCK 5***

IMC FORM 104 Rev. 8/30/01

**BLOCK 5 (FOR ALL APPLICANTS)**

**INITIAL EACH BOX**

## AFFIRMATIONS Initialing each box affirms that you have read and agree to each of the statements.

**A. License Status**

My license to practice is currently active and unrestricted. I certify that I will notify the IMC of any of the following events: a) change in my license status; b) any past or future conviction related to the conduct of my practice or for any crime of moral turpitude; and c) upon being placed on probation by my licensing board or by any court-ordered probation. I understand that in such cases I am subject to disciplinary action by the IMC. ☐

**B. Probationary Status**

I certify that I am not currently on probation with my licensing board nor on any court-ordered probation. I certify that I have not committed a misdemeanor or felony related to my practice. I further certify that my licensing board has not taken any action against me and my license to practice is unrestricted. **(Do not initial if your statement is untrue; attach explanation on separate piece of paper. I understand that in such cases I am subject to disciplinary action by the IMC. )** ☐

**C. Financial Interest**

I have read and understand Labor Code Sections 139.3 and 139.31. I agree that I shall abide by all their provisions. I will not refer patients to facilities in which I or my family members have a financial interest, except as permitted by law. I agree I shall not offer, deliver, receive or accept any rebate, refund, commission, preference, patronage, dividend, discount or other consideration, whether in the form of money or otherwise, as compensation or inducement for any referred evaluation or consultation. I agree not to solicit to provide medical treatment to an injured employee for any injury for which I have done a QME evaluation. I have not performed a QME evaluation while not certified by the IMC as a QME. ☐

**D. Continuing Education Courses**

List the continuing education courses you have completed within the last 24 months:

| Name of Provider | Name of Course | Date(s) | Number of Credits |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

**VERIFICATION**

**I have used all reasonable diligence in preparing and completing this application. I have reviewed this completed application and to the best of my knowledge the information contained herein and in the attached supporting documentation is true, correct and complete. Failure to provide truthful information shall result in denial of applicant's reappointment and/or disciplinary procedures. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.**

☐ ☐ _____

**Executed on (MM/DD/YY) at County CA Applicant's Signature**

IMC FORM 104 Rev. 8/30/01

A PUBLIC DOCUMENT

PRIVACY NOTICE – The Information Practices Act of 1977 and the Federal Privacy Act require the Industrial Medical Council (IMC) to provide the following notice to individuals who are asked by a governmental entity to supply information for appointment as a Qualified Medical Evaluator (QME).

The principal purpose for requesting information from QMEs is to administer the QME program within the California workers' compensation system. Additional information may be requested if your application is denied and/or a disciplinary action is taken.

The California Labor Code requires every QME physician to meet certain statutory requirements. Physicians are required by the Labor Code to provide: name; business address/addresses; professional education; training; license number; year entered practice and other requirements deemed necessary by the IMC. It is mandatory to furnish all the appropriate information requested by the IMC. Failure to provide all of the requested information may result in the denial of the application.

As authorized by law, information furnished on this form may be given to: you, upon request; the public, pursuant to the Public Records Act; a governmental entity, when required by state or federal law; to any person, pursuant to a subpoena or court order or pursuant to any other exception in Civil Code § 1798.24.

An individual has a right of access to records containing his/her personal information that are maintained by the IMC. An individual may also amend, correct, or dispute information in such personal records (Civil Code § 1798.34–1798.37).

Requests should be sent to:

The Industrial Medical Council
P.O. BOX 8888
SAN FRANCISCO, CA 94128–8888
(650) 737–2700
www.dir.ca.gov

You may request a copy of the IMC policy and procedures for inspection of records at the above address. Copies of the procedures and all records are twenty–five cents ($0.25) per page, payable in advance. (Civil Code § 1798.33).

IMC Form 104 Rev. 8/30/01

**For Use on the QME Reappointment Application Form**

*MD/DO Specialty Codes*

| | |
|---|---|
| MAI | Allergy and Immunology |
| MAA | Anesthesiology |
| MRS | Colon & Rectal Surgery |
| MDE | Dermatology |
| MEM | Emergency Medicine |
| MFP | Family Practice – MD |
| OFP | Family Practice – DO |
| OFM | Family Practice – DO – Including Osteopathic Manipulation |
| MPM | General Preventive Medicine |
| MOH | Hand–Orthopaedic Surgery |
| MPH | Hand–Plastic Surgery |
| MSH | Hand–Surgery |
| MMM | Internal Medicine |
| MMV | Internal Medicine–Cardiovascular Disease |
| MME | Internal Medicine–Endocrinology Diabetes and Metabolism |
| MMG | Internal Medicine–Gastroenterology |
| MMH | Internal Medicine–Hematology |
| MMI | Internal Medicine–Infectious Disease |
| MMO | Internal Medicine–Medical Oncology |
| MMN | Internal Medicine–Nephrology |
| MMP | Internal Medicine–Pulmonary Disease |
| MMR | Internal Medicine–Rheumatology |
| MOQ | Medicine – Otherwise Qualified |
| MPB | Neurological Surgery–Including Back |
| MPN | Neurology |
| MNS | Neurological Surgery |
| MNM | Nuclear Medicine |
| MOG | Obstetrics and Gynecology |
| MPO | Occupational Medicine |
| MOP | Ophthalmology |
| MOS | Orthopaedic Surgery |
| MOB | Orthopaedic Surgery–Including Back |
| MTO | Otolaryngology |
| MAP | Pain Management–Anesthesiology |
| MPP | Pain Management–Pain Medicine |
| MHA | Pathology |

*Non–MD/DO Specialty Codes*

*denotes a doctor of chiropractic who has completed a chiropractic post–graduate specialty program

| | |
|---|---|
| ACA | Acupuncture |
| DCH | Chiropractic – |
| DCN | Chiropractic–Neurology* |
| DCO | Chiropractic –Orthopaedic* |
| DCR | Chiropractic – Radiology* |
| DCS | Chiropractic – Sports Medicine* |
| DCT | Chiropractic – Rehabilitation* |
| DEN | Dentistry |
| OPT | Optometry |
| POD | Podiatry |
| PSY | Psychology |
| PSN | Psychology–Clinical Neuropsychology |

*MD/DO Specialty Codes*

| | |
|---|---|
| MEP | Pediatrics |
| MPR | Physical Medicine & Rehabilitation |
| MPS | Plastic Surgery |
| MPD | Psychiatry |
| MRY | Radiology |
| MSY | Surgery |
| MSG | Surgery–General Vascular |
| MTS | Thoracic Surgery |
| MPT | Toxicology–Occupational Medicine |
| MET | Toxicology–Emergency Medicine |
| MUU | Urology |

Attachment to Form 104
Rev. 8/30/01

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.
2. Amendment filed 9–6–2001; operative 10–6–2001 (Register 2001, No. 36).

## Article 10.5. QME Process Forms

### § 105. The Request for Qualified Medical Evaluator Instruction Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 OYSTER POINT BLVD., STE. 102
SOUTH SAN FRANCISCO, CA 94080
TEL: (650) 737-2700 (800) 794-6900 Fax: (650) 737-2911

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128-8888

**HOW TO REQUEST A QUALIFIED MEDICAL EVALUATOR**

**IF YOU DO NOT HAVE A LAWYER**

Since you do not have a lawyer, you may ask the Industrial Medical Council for help in getting a Qualified Medical Evaluator (QME). The QME will look at your injury and answer medical questions about it.

To ask for a QME, please fill out the attached form and return immediately. You may ask for help from your treating doctor to determine the specialty appropriate for your injury. If the request form is incomplete or improperly completed, the form will be returned to you to correct the problem.

After our office processes your request, you will receive, in the mail, a list of three QMEs. These QMEs are selected at random and should have an office close to you. Only you may select the specialty of the QME who performs the evaluation.

You must make your appointment with one of the QMEs on the list. If the QME cannot make an appointment for an evaluation within 60 days of your call, your may either wait to see that QME of your choice or you may call us to get a replacement QME for your list. After completing the evaluation, the QME must send you a report within:

(a) 30 days of your appointment – if date of injury is on or after 1/1/94 or,
(b) 45 days of your appointment – if date of injury is between 1/1/91 and 12/31/93.

Please call the Industrial Medical Council at 1-800-794-6900, or the Information and Assistance officer from the Division of Workers' Compensation at 1-800-736-7401, if you have any questions relating to your workers' compensation claim.

Attachment to: IMC Form 106

IMC Form 105 Rev. 3/01/00

HISTORY

1. New article 10.5 (sections 105-117) and new section filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.

[The next page is 2.45.]

§ 106. The Request for Qualified Medical Evaluator Form.

STATE OF CALIFORNIA

INDUSTRIAL MEDICAL COUNCIL

IMC FORM 106

## Request for Qualified Medical Evaluator
## (Please Complete Form/Type or Print)

**EMPLOYEE INFORMATION**

| TODAY'S DATE | DATE OF INJURY (LIST ONLY ONE) (Requests without month/day/ yearof injury will be returned). |
|---|---|

NAME _____

ADDRESS _____

CITY, STATE, ZIP CODE _____

(AREA CODE) PHONE # _____

If currently residing out of state, list residence at the time of injury:

CITY, ZIP CODE _____

**EMPLOYER INFORMATION**

NAME _____

ADDRESS _____

CITY, STATE, ZIP CODE _____

(AREA CODE) PHONE # _____

**INSURER or CLAIMS ADMINISTRATOR INFORMATION**

NAME _____

COMPANY _____

ADDRESS _____

CITY, STATE, ZIP CODE _____

(AREA CODE) PHONE # _____ CLAIM NUMBER _____

**This Section to be Filled out by the Injured Worker ONLY**
**Please list ONLY ONE specialty (Insert three letter code from the back of this form)**

Specialty Physician Requested: _____ _____
Signature of Injured Worker

PLEASE NOTE: **Panels will be issued in the area of the injured worker's residence. If the injured worker resides out of state the panel will be issued in the area of residence at time of injury. If due to special circumstances another city is required please attach letter of agreement from the carrier and the city and zip code being requested.**

If the IMC does not issue a panel within 15 working days after this request is received by the IMC, you are entitled to select a QME of your choice. Send this completed form to:

**INDUSTRIAL MEDICAL COUNCIL**
Executive Medical Director
P. O. Box 8888
San Francisco, CA 94128-8888
(650) 737-2700 or (800) 794-6900
(650) 737-2707 FAX

IMC Form 106
Rev. 4/14/00(A)

**For Use with the QME Panel Request Form**

*MD/DO Specialty Codes*

| *Codes* | |
|---|---|
| MAI | Allergy and Immunology |
| MAA | Anesthesiology |
| MRS | Colon & Rectal Surgery |
| MDE | Dermatology |
| MEM | Emergency Medicine |
| MFP | Family Practice – MD |
| OFP | Family Practice – DO |
| OFM | Family Practice – DO – Including Osteopathic Manipulation |
| MPM | General Preventive Medicine |
| MOH | Hand–Orthopaedic Surgery |
| MPH | Hand–Plastic Surgery |
| MSH | Hand–Surgery |
| MMM | Internal Medicine |
| MMV | Internal Medicine–Cardiovascular Disease |
| MME | Internal Medicine–Endocrinology Diabetes and Metabolism |
| MMG | Internal Medicine–Gastroenterology |
| MMH | Internal Medicine–Hematology |
| MMI | Internal Medicine–Infectious Disease |
| MMO | Internal Medicine–Medical Oncology |
| MMN | Internal Medicine–Nephrology |
| MMP | Internal Medicine–Pulmonary Disease |
| MMR | Internal Medicine–Rheumatology |
| MOQ | Medicine – Otherwise Qualified |
| MPB | Neurological Surgery–Including Back |
| MPN | Neurology |
| MNS | Neurological Surgery |
| MNM | Nuclear Medicine |
| MOG | Obstetrics and Gynecology |
| MPO | Occupational Medicine |
| MOP | Ophthalmology |
| MOS | Orthopaedic Surgery |
| MOB | Orthopaedic Surgery–Including Back |
| MTO | Otolaryngology |
| MAP | Pain Management–Anesthesiology |
| MPP | Pain Management–Pain Medicine |
| MHA | Pathology |

*Non–MD/DO Specialty*

*denotes a doctor of chiropractic who has completed a chiropractic post–graduate specialty program

| | |
|---|---|
| ACA | Acupuncture |
| DCH | Chiropractic |
| DCN | Chiropractic–Neurology* |
| DCO | Chiropractic –Orthopaedic* |
| DCR | Chiropractic – Radiology* |
| DCS | Chiropractic – Sports Medicine* |
| DCT | Chiropractic – Rehabilitiation* |
| DEN | Dentistry |
| OPT | Optometry |
| POD | Podiatry |
| PSY | Psychology |
| PSN | Psychology–Clinical Neuropsychology |

*MD/DO Specialty Codes*

| | |
|---|---|
| MEP | Pediatrics |
| MPR | Physical Medicine & Rehabilitation |
| MPS | Plastic Surgery |
| MPD | Psychiatry |
| MRY | Radiology |
| MSY | Surgery |
| MSG | Surgery–General Vascular |
| MTS | Thoracic Surgery |
| MPT | Toxicology–Occupational Medicine |
| MET | Toxicology–Emergency Medicine |
| MUU | Urology |

Attachment to Form 106
Rev. 4/14/00(A)

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.
2. Change without regulatory effect amending section filed 5–2–2002 pursuant to section 100, title 1, California Code of Regulations (Register 2002, No. 18).

## § 107. The Qualified Medical Evaluator Panel Selection Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737-2700 (800) 794-6900 Fax: (650) 737-2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128-8888

INJURED WORKER INFORMATION

Panel # _____

Date of Request: _____ Date of Issue: _____

Claim No.: _____ Date of Injury: _____

Claims Administrator: _____

To: _____
_____
_____

SELECTED QUALIFIED MEDICAL EVALUATOR PANEL:

☐ PHYSICIAN'S NAME
ADDRESS
Tel. No.:
SPECIALTY
YEARS IN PRACTICE
PHYSICIAN'S EDUCATION
PHYSICIAN'S TRAINING

☐ PHYSICIAN'S NAME
ADDRESS
Tel. No.:
SPECIALTY
YEARS IN PRACTICE
PHYSICIAN'S EDUCATION
PHYSICIAN'S TRAINING

☐ PHYSICIAN'S NAME
ADDRESS
Tel. No.:
SPECIALTY
YEARS IN PRACTICE
PHYSICIAN'S EDUCATION
PHYSICIAN'S TRAINING.

IMC FORM 107 Rev. 3/01/00

NOTE: Authority cited: Sections 139.2, 4061 and 4062, Labor Code. Reference: Section 139.2, Labor Code.

HISTORY
1. New section filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.

## § 108. The Request for Qualified Medical Evaluator Panel Selection Instruction Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737–2700 (800) 794–6900 Fax: (650) 737–2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128–8888

**To: Injured Worker**

This list of Qualified Medical Evaluator (QME) physicians is being issued to you because a "Request for a Qualified Medical Evaluator" form was received in our office. These physicians were randomly selected by a computer. The QME you choose will evaluate or make determinations on medical questions about your work injury. For injuries prior to 1/1/94, the QME performs the final permanent disability evaluation once your treating physician determines that you condition is permanent and stationary. For injuries as of 1/1/94, a QME is only used when there is a dispute over the primary treating physicians report.

Please take the following steps:

1) Select one QME physician off the list

Your claims administrator (or if none, employer) should not select the QME or influence you on which physician to pick. You may consult with an Information and Assistance Officer in your area by calling 1–800–736–7401 before making a selection. You may also consult with an attorney. If you decide to become represented by an attorney, you should not select a QME from the list. For injuries on or after 1/1/94, if your primary treating physician or an other physician(s) who has treated you for this injury is listed on your panel you must call the Industrial Medical Council (IMC) for a replacement since your primary treating physician(s) cannot also be your QME.

2) Call the QME physician's office to make your appointment.

Make it clear to the QME's office staff that you are calling for a "QME exam". The person at the doctor's office will ask you for information that you will find on the upper right corner of the attached form. If the doctor you choose from your panel cannot arrange an appointment for evaluation with you within 60 days of your call, the QME's office may not offer you a substitute QME who is not on the list. You may:

a) select one of the other QMEs on the list;
b) call the IMC at 1–800–794–6900 to request that the unavailable QME on the list be replaced; or
c) agree to wait over the 60–day period to see any of the QMEs listed on your panel.

3) Review of medical records

You should be provided with copies of medical and non–medical records at least 20 days before information is to be provided to the QME. Within 10 days of receipt of the records, you may object to any non–medical records that might be sent to the QME for review.

If you plan to provide information to the QME, you must provide a copy of any medical or non–medical records you will be providing the QME to the claims administrator (or employer) at least 20 days before information is to be provided to the QME. Failure to send a copy of all records being sent to the QME may adversely affect your claim.

Your claims administrator (or employer) has 10 days after receiving the information to object to non–medical records. Copies of non–medical records objected to will not be provided to the QME but may be seen by the workers' compensation judge in your case, or by the QME at a later date if your claims administrator contests medical issues in your claim.

4) Your employer will pay for the exam

Your claims administrator (or employer) will pay for the exam, any translator services you need for the exam and for any reasonable cost to get you to and from the QME evaluation. You will also be paid disability benefits for each day of the evaluation, if you lose wages.

5) If the IMC does not provide you with a panel of QMEs within 15 working days of receipt of your request, you may choose any QME (with the proper specialty for your injury).

If the difference between "Date Request Received" and "Date of Issue" on your panel shows more than 15 working days, you may: choose to go to one of the QMEs on your panel; go to any Information and Assistance Office for assistance in choosing a QME; or call the Industrial Medical Council at 1–800–794–6900 to request a new panel of QMEs with the specialty you need for your evaluation.

6) A QME may not offer or solicit you to become your treating physician. However, you have the right to request the QME to become your treating physician. You may wish to consult with an Information and Assistance officer prior to this decision.

7) For additional information contact the IMC and request its pamphlets "Your Medical Evaluation" and "Fact Sheet for Injured Workers".

8) If the QME does not send the report on time, contact the IMC.

(a) 30 days of your appointment – if date of injury is on or after 1/1/94 or,
(b) 45 days of your appointment – if date of injury is between 1/1/91 and 12/31/93.

IMC FORM 108 Rev. 3/01/00

NOTE: Authority cited: Sections 133, 139, 139.2, 4061 and 4062, Labor Code. Reference: Sections 139.2, 4061, 4061.5 and 4062, Labor Code.

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.

## § 109. The Notice of Qualified Medical Evaluator Unavailability Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737–2700 (1–800) 794–6900 Fax: (650) 737–2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128–8888

NOTICE OF QME UNAVAILABILITY
(Form must be filed 30 days prior to date of unavailability)

TO: EXECUTIVE MEDICAL DIRECTOR
INDUSTRIAL MEDICAL COUNCIL

Please check the appropriate boxes, if you will be unavailable for panel assignment for a period of 14 days or more.

☐ Please accept this notice that I will be unavailable for qualified medical evaluation panel selection assignment:

from _____ to _____
(month, day, year) (month, day, year)

☐ Check here if you have filed for unavailabe during the calendar year.

☐ I will no longer be available for qualified medical evaluation assignment. Please remove my name from the list of Qualified Medical Evaluator.

---

☐ The above information is for all of my QME office locations.

☐ The above information is only for the QME office location(s) listed below.

QME Office Street Address: _____

City _____ CA, Zip Code _____

QME Office Street Address: _____

City _____ CA, Zip Code _____

QME Office Street Address: _____

City _____ CA, Zip Code _____

Signature _____ Date _____ License # _____

Name(print/type) _____ (Area Code) Phone # _____

NOTE: It is not an acceptable reason for unavailability that a QME does not intend to perform evaluations for unrepresented workers. A QME who is unavailable may not perform QME evaluation until the QME has been reinstated. A QME who is unavailable for more than 90 days during the calendar year without good cause may be denied reappointment.

**Send this completed form to:**

**INDUSTRIAL MEDICAL COUNCIL**
**P.O. BOX 8888**
**SAN FRANCISCO, CA 94128–8888**
**(650) 737–2700 OR (800) 794–6900**
**(650) 737–2707 FAX**

IMC Form 109 Rev. 3/01/00

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY
1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.

## § 110. The Appointment Notification Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737-2700 (1-800) 794-6900 Fax: (650) 737-2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128-8888

QME APPOINTMENT NOTIFICATION FORM

To The Qualified Medical Evaluator: You are required by law to give notice on a prescribed form when an appointment has been made with you to perform a QME comprehensive medical evaluation. The Industrial Medical Council (IMC) has prescribed this form for this purpose. Please complete this form in its entirety, noting that you are legally required to include: the name and address of the employee, the name of the employer and claims administrator, and the appointment time and date. The IMC also requires that you serve this appointment notification form on the employee and the employer/insurer or if none, within five (5) days after having scheduled the injured worker to be seen for a QME comprehensive medical evaluation.

EMPLOYEE INFORMATION

NAME _____

STREET ADDRESS _____
(City, State, Zip) _____

(AREA CODE) PHONE # _____ SOCIAL SECURITY # _____
Social Security Number is for record-keeping purposes only.

DATE OF INJURY _____ PANEL # _____ CLAIM # _____

EMPLOYER INFORMATION

NAME _____

STREET ADDRESS _____
(City, State, Zip) _____

(AREA CODE) PHONE # _____

INSURER or CLAIMS ADMINISTRATOR INFORMATION

NAME _____

COMPANY _____

ADDRESS _____

(AREA CODE) PHONE # _____

DATE OF APPOINTMENT CALL _____ DATE OF APPOINTMENT _____ TIME OF APPOINTMENT _____

LOCATION OF APPOINTMENT: _____

CERTIFIED INTERPRETER REQUIRED: (language) _____

COPY TO:
- ☐ EMPLOYEE
- ☐ CLAIMS ADMINISTRATOR (IF NONE, EMPLOYER)

Signature of QME _____ Date _____

Name of QME (print/type) _____

Address/Telephone _____

Note to Claims Administrator: The Administrative Director's regulation 10160 requires you to forward a completed DEU form 101, "Request for Summary Rating," together with all medical reports and medical records prior to the scheduled examination with the QME. You must also provide the employee with a DEU Form 100, "Employee's Disability Questionnaire," prior to the examination.

IMC FORM 110 Rev. 3/01/00

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4061 and 4062, Labor Code.

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15). For prior history see Register 94, No. 31.

## § 111. The Qualified or Agreed Medical Evaluator Findings Summary Form.

Department of Industrial Relations, Industrial Medical Council, PO Box 8888, San Francisco, CA 94128• (650) 737–2700

State of California

### Qualified or Agreed Medical Evaluator's Findings Summary Form

**Employee**

1. Employee Name (First, Middle, Last) 2. Social Sec No. (Optional) 3. Date of Injury (Mo/Dy/Yr)

4. Street Address City Zip 5. Telephone

**Claims Administrator/ Employer**

6. Name:

7. Street Address City Zip 8. Telephone

**Exam Referral Schedule**

9. Date of Appointment Call 10. Date of Initial Examination 11. Date of Referral for Medical Testing/Consultation

12. Date AME/QME's Report Served on all Parties

**Disputed Medical Issues And Conclusion**

13. The following medical issues will be used to determine the patient's eligibility for workers' compensation. Check the appropriate box and reference the corresponding page(s) or section of the med–legal reports for details.

| | Report page(s) or section | Yes | No | Pending or Info. Not Sent |
|---|---|---|---|---|
| a. Is there permanent disability? | _____ | ☐ | ☐ | ☐ |
| b. Is the medical condition stable and not likely to improve with active medical or surgical treatment (i.e., is the condition permanent and stationary)? | _____ | ☐ | ☐ | ☐ |
| c. Did work cause or contribute to the injury or illness? | _____ | ☐ | ☐ | ☐ |
| d. If permanent disability exists, is apportionment warranted? | _____ | ☐ | ☐ | ☐ |
| e. Is there a need for current or future medical care? | _____ | ☐ | ☐ | ☐ |

f. Can this employee now return to his/her usual job? ☐ Yes ☐ No
If yes:

i. Without restrictions ☐ Yes ☐ No, if YES, Date: _____

ii. With restrictions ☐ Yes ☐ No, if YES, Date: _____

If restricted work is recommended., reference page(s)/section in report for details:

**Basis for Conclusions**

Check box and refer to page(s) or section in report.

| | Report page(s) or section | Yes | No | Pending or Info. Not Sent |
|---|---|---|---|---|
| 14. Are there subjective complaints? | _____ | ☐ | ☐ | ☐ |
| 15. Are there any abnormal physical or psychological examination findings? | _____ | ☐ | ☐ | ☐ |
| 16. Are there any relevant diagnostic test results (x–ray/laboratory)? | _____ | ☐ | ☐ | ☐ |
| 17. What are the diagnoses? (List) _____ | | | | |
| 18. Were treating physician's reports reviewed? | _____ | ☐ | ☐ | ☐ |
| 19. Were other physicians consulted? | _____ | ☐ Yes | ☐ No | |

QME 20. Signature _____ Date: _____

21. Name _____ Specialty _____

22. Street Address _____ City _____ Zip _____

23. Telephone _____ Cal. # _____

IMC FORM 111 Rev. 3/01/00 (OVER)

Department of Industrial Relations, Industrial Medical Council, PO Box 8888, San Francisco, CA 94128 • (650) 737–2700

Instructions

To the QME or AME: You are required by Labor Code section 4061 to summarize the medical findings from your comprehensive medical–legal evaluation on the form prescribed by the Industrial Medical Council (IMC). Please complete the form in its entirety.

Employee Information: Fill in employee's full name, address, telephone number and date of injury.

Exam Referral Schedule: complete dates that patient called for an appointment, date of initial examination, date referred for consultation(s), if any, and date report served on all parties. Supplying these dates are a legal requirement.

Disputed Medical Issues and Conclusions: Complete this section by checking appropriate box and stating what page(s) or section of the medical legal report contain the narrative for details. If diagnostic or laboratory tests have been ordered and the results or a medical records request is pending, check that box. If you cannot render opinions because of pending information, please complete and serve the report to comply with the 30 day time requirement and state what issues could not be evaluated.

Basis for Conclusions: Check appropriate box and give page numbers or section where the narrative in the full report is found. For diagnoses, in addition to page numbers, please briefly summarize the diagnoses in lay terms where possible. Also, list name and specialty for other physicians who provided information used in the medical legal report.

Signature: Remember under the Labor Code, all your reports must be signed under the penalty of perjury. You are required to serve the medical legal report and this form on the employee, the claims administrator, (if none, employer) and the Disability Evaluation Unit (DEU) having jurisdiction over the employee's area of residence.

IMC Form 111 Rev. 3/01/00

NOTE: Authority cited: Sections 139, 139.2 and 4061, Labor Code. Reference: Sections 139.2 and 4061, Labor Code.

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## § 112. The Qualified or Agreed Medical Evaluator Extension Request Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737-2700 (800) 794-6900 Fax: (650) 737-2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128-8888

QME/AME TIME FRAME EXTENSION REQUEST- (For Late Reporting on Accepted Claims)

Please send this form to the Industrial Medical Council at the above address 5 days before your report is due to be served on the parties. Send a copy of this form to the employee and employer/insurer/claims administrator. The QME may not be entitled to payment for evaluations which are not submitted in a timely manner (Labor Code § 4062.5). If you need further information, please call us at (650) 737-2700 or 1-800-794-6900.

DATE OF EVALUATION:_____ DATE REPORT WILL BE SERVED:_____

THERE ARE ONLY THREE (3) VALID REASONS FOR AN EXTENSION, YOU ARE REQUIRED TO CHECK ONE OF THE THREE (3) BOXES LISTED BELOW. FORMS NOT FULLY COMPLETED WILL BE RETURNED.

REASON FOR REQUEST:

1. ☐ Lab/tests have not been completed – type of test(s) requested:_____

2. ☐ Consulting specialist has not completed evaluation – type of specialist(s):_____

For injuries between 1/1/91 and 12/31/93. **If extension requested is beyond 90 days, from date of initial evaluation, please attach justification.**

For injuries on or after 1/194. **If extension requested is beyond 60 days, from date of initial evaluation, please attach justification**

3. ☐ EXTENSIONS FOR GOOD CAUSE:

Extensions for Good Cause may not exceed an additional 15 days from the date the report is required to be served and must be approved by the Executive Medical Director. Please check the appropriate box and specify good cause.

A. ☐ Medical emergency of the evaluator or the evaluator's family.

B. ☐ Death in evaluator's family.

C. ☐ Natural disaster or other community catastrophes that interrupt the operation of the evaluator's office.

Specify Good Cause _____

_____

Employee's Name _____ Date of Injury_____

Name of Employer_____Claims Administrator_____

Name of QME (PRINT/TYPE)_____QME NUMBER_____

Signature of QME_____Date_____

Street Address_____City/Zip_____Telephone_____

FOR IMC/DWC USE ONLY
( ) Extensions approved- form 113 ( ) Extension denied-Forms 114, 115

Executive Medical Director:_____Date_____

IMC FORM 112 Rev. 3/01/00

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062 and 4062.5, Labor Code.

HISTORY

1. New section filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

## § 113. The Time Extension Approval Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737–2700 (800) 794–6900 Fax: (650) 737–2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128–8888

**IMPORTANT: RETURN TO THE IMC WITHIN 15 DAYS.**

Date:_____

TO:

EMPLOYEE'S NAME _____

_____

_____

Claim Number:_____ Panel Number:_____

TIME EXTENSION APPROVAL

Your QME/AME doctor has asked for an extension of the time in which he/she is required to complete your medical evaluation. We are allowing the doctor extra time to do so. If you are unrepresented and the report is still not complete by _____, you may either:

(1) accept the report when it is completed or
(2) ask for a replacement panel and repeat the QME process

You are required to make a decision, check, sign and return this form using the postage prepaid return envelope within 15 days.

☐ check here if you give up your right to a new QME panel at this time. You have up to the date the QME serves the report to call and request a new panel.

☐ check here if you wish to have a new QME panel sent if the report is not completed by the above date.

_____ _____
Signature Date

If you are represented, please consult your attorney.

If you have any questions please call (650) 737–2700/800–794–6900 or write to:

The Industrial Medical Council
P.O. Box 8888
San Francisco, CA 94128–8888

IMC FORM 113 Rev. 3/01/00

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062 and 4062.5, Labor Code.

HISTORY
1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## § 114. The Denial of Time Extension Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737–2700 (800) 794–6900 Fax: (650) 737–2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128–8888

TO: DATE: _____

Evaluator's Name _____

_____

_____

Injured worker's Name _____

_____

_____

Date of Injury: _____

Case Number: _____

Claim Number: _____

Panel Number: _____

**DENIAL OF TIME EXTENSION**

Your request for time extension for medical evaluation report submission has been denied for the following reason(s):

_____

_____

_____

The report is due within 45 days (for injuries occurring on or after 1/1/91 up to 12/31/93) or 30 days (for injuries occurring on or after 1/1/94) of the appointment. Please note Labor Code section 4062.5 states that the QME is not entitled to payment for evaluations which are not submitted in a timely manner and rejected by the applicant. The injured worker now has the option of accepting the late report or requesting a replacement.

IMC FORM 114 Rev. 3/01/00

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062 and 4062.5, Labor Code.

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## § 115. The Notice of Late Qualified Medical Evaluator Report Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737–2700 (800) 794–6900 Fax: (650) 737–2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128–8888

**IMPORTANT: RETURN TO THE IMC WITHIN 15 DAYS.**

Date:_____

TO:

EMPLOYEE'S NAME _____

_____

_____

Claim Number:_____ Panel Number:_____

**NOTICE OF LATE QME REPORT – EXTENSION REQUEST DENIED**

Your QME has not completed your medical evaluation report within the required time from the date of your evaluation. You can accept the delay of your evaluation or ask the IMC for a replacement panel and repeat the QME process.

You are required to make a decision, check, sign and return this form using the postage prepaid return envelope within 15 days. This time period may be extended upon a showing of good cause to the Medical Director.

☐ Check here if you give up your right to a new QME panel at this time. If the QME does not serve the report by _____, you may call and request a new panel.

☐ Check here if you wish to have a new QME panel.

Signature:_____ Date:_____

If you are represented, please consult your attorney.

If you have any questions please call (650) 737–2700/800–794–6900 or write to:

The Industrial Medical Council
P.O. Box 8888
San Francisco, CA 94128–8888

cc: Claims Administrator
QME

IMC Form 115 Rev. 3/01/00

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062 and 4062.5, Labor Code.

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

## § 116. The Notice of Late Qualified Medical Evaluator Report Form—Extension Not Requested Form.

STATE OF CALIFORNIA GRAY DAVIS, GOVERNOR

DEPARTMENT OF INDUSTRIAL RELATIONS
**INDUSTRIAL MEDICAL COUNCIL**
395 Oyster Point Blvd. Ste. 102
South San Francisco, CA 94080
Tel: (650) 737-2769 (800) 794-6900 Fax: (650) 737-2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128-8888

**IMPORTANT: RETURN TO THE IMC WITHIN 15 DAYS**

Date: _____

TO:

EMPLOYEE'S NAME: _____

_____

_____

Claim Number: _____ Panel Number: _____

**NOTICE OF LATE QME REPORT — NO EXTENSION REQUESTED**

It has come to our attention that your QME doctor has not completed your medical evaluation report within the required time from the date of your evaluation. You can accept the delay of your evaluation report or ask the IMC for a replacement panel and repeat the QME process.

You are required to make a decision, check, sign and return this form using the postage prepaid return envelope within 15 days. This time period may be extended upon a showing of good cause to the Medical Director.

☐ Check here if you give up your right to a new QME panel at this time. You have up to the date the QME serves the report to call and request a new panel.

☐ Check here if you wish to have a new QME panel.

Signature: _____ Date: _____

If you are represented, please consult your attorney.
If you have any questions, please call (650) 737-2767/800-794-6900 or write to:

Industrial Medical Council
P.O. Box 8888
San Francisco, CA 94128-8888

cc: Claims Administrator
QME

IMC Form 116 Rev. 3/01/00

NOTE: Authority cited: Sections 139 and 139.2, Labor Code. Reference: Sections 139.2, 4060, 4061, 4062 and 4062.5, Labor Code.

HISTORY

1. New section filed 4-14-2000; operative 5-14-2000 (Register 2000, No. 15).

## § 117. Qualified Medical Evaluator Continuing Education Response Form.

STATE OF CALIFORNIA GRAY DAVIS, *GOVERNOR*

DEPARTMENT OF INDUSTRIAL RELATIONS
INDUSTRIAL MEDICAL COUNCIL
395 Oyster Point Blvd., Ste. 102
South San Francisco, CA 94080
Tel: (650) 737–2700 (800) 794–6900 Fax: (650) 737–2711

ADDRESS REPLY TO:
P.O. Box 8888
San Francisco, CA 94128–8888

INDUSTRIAL MEDICAL COUNCIL COURSE EVALUATION

As a part of the IMC's ongoing efforts to ensure that courses for Qualified Medical Evaluators offer valuable information on California's Workers' Compensation–related medical evaluation issues, we are asking attendees of the IMC approved courses (including distance learning programs) to complete the following Course Evaluation.

Date of Course:_____ Course Provider:_____

Course Name:_____

Maximum Course Hours Available _____ Hours Completed_____

| | Excellent | Good | Satisfactory | Fair | Poor |
|---|---|---|---|---|---|
| Content Hand–out material | 5 | 4 | 3 | 2 | 1 |
| Adequate/Accurate new information | 5 | 4 | 3 | 2 | 1 |
| Educational Objective Met | 5 | 4 | 3 | 2 | 1 |
| Pertinence to QME evaluations | 5 | 4 | 3 | 2 | 1 |
| Knowledge of presenters | 5 | 4 | 3 | 2 | 1 |
| Syllabus Legibility | 5 | 4 | 3 | 2 | 1 |
| Adequacy of Room | 5 | 4 | 3 | 2 | 1 |
| Adequacy of Audio Visual | 5 | 4 | 3 | 2 | 1 |
| Overall Rating | 5 | 4 | 3 | 2 | 1 |

What improvement(s) would you suggest?_____

_____

_____

_____

TO ALL ATTENDEES: PLEASE RETURN THIS FORM TO THE IMC

All providers shall be required to provide this response form (postage paid) to all attendees and shall advise all attendees that the form should be promptly returned to the IMC at the address on the back of this form.

IMC Form 117 Rev. 3/01/00(A)

NOTE: Authority cited: Section 139.2, Labor Code. Reference: Section 139.2, Labor Code.

HISTORY

1. New section filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).
2. Change without regulatory effect amending section filed 5–2–2002 pursuant to section 100, title 1, California Code of Regulations (Register 2002, No. 18).

§ 118. Application for Accreditation or Re–Accreditation As Education Provider.



Department of Industrial Relations
Industrial Medical Council
P. O. Box 8888
San Francisco, CA 94128-8888

## APPLICATION FOR ACCREDITATION OR RE-ACCREDITATION AS EDUCATION PROVIDER

| FOR OFFICE USE ONLY | |
|---|---|
| APPROVED | |
| DENIED | |

| | |
|---|---|
| NO. | |
| DATE | |
| INITIALS | |

SECTION 1 - PROVIDER

**NAME OR PROVIDER:** _____

**ADDRESS** _____

**CITY** _____ **STATE** _____ **ZIP** _____

**DIRECTOR OF EDUCATION** _____

**PHONE** (___) _____ **FAX** (___) _____ **E-MAIL ADDRESS** _____

**TYPE OF ORGANIZATION** _____

**LENGTH OF TIME IN BUSINESS** ☐

**NATURE OF BUSINESS/ MISSION STATEMENT**

_____

_____

_____

_____

**PAST CONTINUING EDUCATION PROGRAMS**

_____

_____

_____

_____

**ACCREDITING AGENCIES WHO HAVE APPROVED PAST PROGRAMS**

_____

_____

_____

_____

**IMC Form 118, Rev.7.01**

SECTION 2 - EDUCATION PROGRAM

**PROGRAM TITLE**

**TYPE OF PROGRAM**

**DISABILITY EVALUATION REPORT WRITING COURSE** ☐ **QME CONTINUING EDUCATION PROGRAM** ☐

**DISTANCE LEARNING PROGRAM**

**DISTANCE LEARNING HOURS** **TOTAL COURSE HOURS**

**PROGRAM OBJECTIVES**

**LOCATION(S) OF PROGRAM(S)** **DATES**

| | |
|---|---|
| | |
| | |
| | |

**(1) INSTRUCTOR** **HOUR(S)**

**TOPIC**

**CONTENT**

**(2) INSTRUCTOR** **HOUR(S)**

**TOPIC**

**CONTENT**

(3) INSTRUCTOR _____ HOUR(S) _____

TOPIC _____

CONTENT

_____

_____

_____

(4) INSTRUCTOR _____ HOUR(S) _____

TOPIC _____

CONTENT

_____

_____

_____

(5) INSTRUCTOR _____ HOUR(S) _____

TOPIC _____

CONTENT

_____

_____

_____

(6) INSTRUCTOR _____ HOUR(S) _____

_____

CONTENT

_____

_____

_____

TOTAL NUMBER OF HOURS REQUESTED FOR APPROVAL _____

LIST OTHER ACCREDITING AGENCIES THAT HAVE APPROVED THIS PROGRAM _____

_____

PRINTED NAME AND TITLE _____ SIGNATURE _____ DATE _____

INSTRUCTIONS: Application for Accreditation as an Education Provider

SECTION 1. PROVIDER

**A "provider" is the individual or organization accredited by the Council to offer physician education programs.**

**Name and address:** Provide the name and address of the individual or organization applying for accreditation as an education provider.

**Director of Education**: Provide the name, phone number, fax and e-mail of the Director of Education.

Type of organization: State whether the applicant is an individual; hospital; clinic or other patient care facility; educational institution; medical or health-related organization whose membership includes Labor Code 3209.3 physicians; organization of non-medial participants in the California workers' compensation system; or a governmental agency.

**Length of time in business**: Provide this figure in years and months - for example, 4 years and 6 months.

**Nature of business/mission statement:** Briefly state the nature of the provider's business and its mission statement.

**Past continuing education programs**: List one or more education programs given by the applicant in the past two years. State the audience and subject matter of each program listed.

List any accrediting agencies that have approved the programs listed above.

SECTION 2. EDUCATION PROGRAM

If applying for accreditation, complete this section for a proposed education program. If applying for re-accreditation, complete this section for a proposed program or for a program which was given during the completed accreditation period.

**Program Title**: State the title of the proposed education program.

**Type of Program:** Check the appropriate box.

**Distance learning:** Check the appropriate box.

**Objectives of Program**: List the education objectives of the proposed program.

**Location and dates of program:** Provide location (hotel, campus, etc.) and city where course will be held, with dates. Applicants for distance learning programs may omit this subsection, as appropriate.

**Instructors, Topics, Hours, and Course Content:** List each instructor (or author) for the proposed program, with relevant professional degree(s) (e.g., M.D., D.C.). Provide the topic or title of each presentation and the number of hours of credit requested for each presentation. Describe the content of the presentation. For distance learning programs, enter "Examinations" under "(1) Instructor" and estimate the time required to take the examinations.

**Other Accrediting agencies:** List all accrediting agencies that have approved the proposed program.

**Sign and date the application.**

**Additional pages may be appended to this application, as needed. Complete the entire application. Do not refer reader to attachments in lieu of completing the application. Incomplete applications will be returned to the applicant.**

**Submit one completed original application and two copies, each with the following attachments:**

1. **one curriculum vitae for each instructor or author listed on the application, and**
2. **one copy of the proposed promotional brochure.**

**The application must be submitted at least 60 days prior to advertisement of the program.**

**When the application has been approved and on or before the date this program is first given, submit the course syllabus (all course handouts) for the program. Providers of distance learning programs must also submit:**

1. **one copy of the pre- and one copy of the post-test examinations, and**
2. **one copy of any video tape(s), audio tape(s), and/or computer program(s) (for video, audio and computer-based programs) used in the program; or**
3. **one copy of each issue of the printed educational material which contains text for which credit is requested (for programs based on journals or newsletters).**

**IMC Form 118, Rev.7.01**

History

1. New section filed 10–16–2000 as an emergency; operative 1–1–2001 (Register 2000, No. 42). A Certificate of Compliance must be transmitted to OAL by 5–1–2001 or emergency language will be repealed by operation of law on the following day.
2. New section refiled 5–2–2001 as an emergency; operative 5–2–2001 (Register 2001, No. 18). A Certificate of Compliance must be transmitted to OAL by 8–30–2001 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 5–2–2001 order, including further amendment of section, transmitted to OAL 7–12–2001 and filed 8–23–2001 (Register 2001, No. 34).

§ 119. Faculty Disclosure of Commercial Interest.

**FACULTY DISCLOSURE OF COMMERCIAL INTEREST**

**As an education provider accredited by the Industrial Medical Council, Provider's name must insure objectivity in its educational activities. Having an interest or ownership in a business does not prevent a physician from making a presentation, but the relationship must be disclosed to the audience, in accordance with Industrial Medical Council regulations. Please complete the information below.**

**TITLE OF COURSE:** _____

**DATE:** _____

**NAME OF FACULTY:** _____

**TITLE OF PRESENTATION:** _____

☐ **Neither I nor my family members have any past or present financial arrangements or affiliations with any businesses involved in products/services which will be discussed at this symposium (Skip to signature).**

☐ **I have a financial interest/arrangement or affiliation with the following businesses which offer products/services which I will discuss at this symposium.**

| **Affiliation/Financial Interest** | **Name(s) of Business(es)** |
|---|---|
| **Grants/Research Support** | _____ |
| **Consultant** | _____ |
| **Speaker's Bureau** | _____ |
| **Major Stock Shareholder** | _____ |
| **Other Financial or Material Interest** | _____ |

_____ _____

**Signature** **Date**

**IMC Form 119, Rev.7.01**

HISTORY

1. New section filed 10–16–2000 as an emergency; operative 1–1–2001 (Register 2000, No. 42). A Certificate of Compliance must be transmitted to OAL by 5–1–2001 or emergency language will be repealed by operation of law on the following day.
2. New section refiled 5–2–2001 as an emergency; operative 5–2–2001 (Register 2001, No. 18). A Certificate of Compliance must be transmitted to OAL by 8–30–2001 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 5–2–2001 order, including further amendment of section, transmitted to OAL 7–12–2001 and filed 8–23–2001 (Register 2001, No. 34).

### § 149. Definitions.

NOTE: Authority cited: Section 139, Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. New article 4.5 and section filed 7–8–94; operative 8–8–94 (Register 94, No. 27).
2. Change without regulatory effect relocating article 4.5 heading and renumbering former section 149 to new section 49 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

### § 149.2. Neuromusculoskeletal Evaluation.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. New section filed 7–8–94; operative 8–8–94 (Register 94, No. 27).
2. Change without regulatory effect renumbering former section 149.2 to new section 49.2 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

### § 149.4. Cardiovascular Evaluation.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. New section filed 7–8–94; operative 8–8–94 (Register 94, No. 27).
2. Change without regulatory effect renumbering former section 149.4 to new section 49.4 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

### § 149.6. Pulmonary Evaluation.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. New section filed 7–8–94; operative 8–8–94 (Register 94, No. 27).
2. Change without regulatory effect renumbering former section 149.6 to new section 49.6 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

### § 149.8. Psychiatric Evaluation.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. New section filed 7–8–94; operative 8–8–94 (Register 94, No. 27).
2. Change without regulatory effect renumbering former section 149.8 to new section 49.8 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

### § 149.9. Other Evaluation.

NOTE: Authority cited: Sections 139 and 139.2(j), Labor Code. Reference: Sections 139, 139.2 and 4628, Labor Code.

HISTORY

1. New section filed 7–8–94; operative 8–8–94 (Register 94, No. 27).
2. Change without regulatory effect renumbering former section 149.9 to new section 49.9 filed 8–31–94 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 35).

## Article 15. Fraudulent or Misleading Advertising

### § 150. Definitions.

As used in this Article:

(a) Advertising copy – includes any "public communication" as defined in Business and Professions Code Section 651, or any other communication of any message in any form or medium regarding the availability for professional employment of any physician, which is made by or on behalf of any physician to the general public or any substantial portion thereof.

Advertising concerning medical services regarding industrial injuries or illnesses which benefits any physician, and which is placed by any medical clinic, medical service organization or other non–physician third party shall be deemed advertising copy subject to these regulations.

(b) Council – means the Industrial Medical Council as defined in Labor Code Section 139.

(c) Medical Board – means the Medical Board of California as established in Business and Professions Code Section 2001.

(d) Medical Director – means the physician appointed pursuant to Labor Code Section 122 or such person as he or she may designate.

(e) Physician – has the meaning defined in Labor Code Section 3209.3.

(f) QME – means a Qualified Medical Evaluator as defined in Labor Code Section 139.2.

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 139, 139.2, 139.4 and 139.45, Labor Code.

HISTORY

1. New article 10 and section filed 3–31–93; operative 4–30–93 (Register 93, No. 14).
2. Renumbering of article 10 to article 15 filed 4–14–2000; operative 5–14–2000 (Register 2000, No. 15).

### § 151. Filing of Documents.

Any document filed under these regulations shall be deemed filed on the date when it is received by the Council.

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 133, 139, 139.4 and 139.45, Labor Code.

HISTORY

1. New section filed 3–31–93; operative 4–30–93 (Register 93, No. 14).

### § 152. Statement of Intent.

Nothing in these regulations is intended to alter the interpretation or application of Business and Professions Code Section 651. These regulations are promulgated under the authority of Labor Code Sections 139.4 and 139.45 and are intended to reflect the Industrial Medical Council's understanding of the Legislature's intent that the Council apply a higher and independent standard, pursuant to those Sections, to physician advertising which relates to industrial injuries or illnesses.

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 139, 139.4 and 139.45, Labor Code.

HISTORY

1. New section filed 3–31–93; operative 4–30–93 (Register 93, No. 14).

### § 153. False or Misleading Advertising Copy Prohibited.

No physician subject to these regulations, or any person acting on his or her behalf or for his or her benefit, shall use, cause to be used, or allow to be used:

(a) Any advertising copy which, through endorsements, testimonials or other representations, makes or implies any guarantee, warranty, or prediction that is intended, or is likely, to create a false or unjustified expectation of favorable results concerning the outcome of the employment of the physician.

(b) Any advertising copy which by use of a firm name, trade name, fictitious business name, or other professional designation states or implies a relationship between any physician in private practice and any governmental agency or entity, with the exception that, as provided in section 154 below, a physician designated by the Council as a Qualified Medical Evaluator may state this fact in advertising copy.

(c) Any advertising copy which states or implies that a medical–legal report written by any physician, or group or association of physicians enjoys any special degree of credibility by any workers' compensation judge or judges.

(d) Any advertising copy which advises or recommends the securing of any medical–legal examination, or which suggests that a tactical advantage may be secured by obtaining any medical–legal evaluation.

(e) Any advertising copy which contains the phrase "Qualified Medical Evaluator" or the designation "QME" unless such phrase is used to identify individual physicians who have been formally designated as

QMEs by the Industrial Medical Council in accordance with Labor Code Section 139.2.

(f) Any advertising copy which contains a firm name, trade name, or fictitious business name which contains the phrases "Qualified Medical Evaluator," "Independent Medical Examiner" or the designations "QME" or "IME."

(g) Any advertising copy which states or implies that any physician has an ongoing appointment, title or professional status as an "Agreed Medical Examiner," "Independent Medical Examiner," "AME," or "IME."

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 139, 139.2, 139.4 and 139.45, Labor Code.

HISTORY

1. New section filed 3–31–93; operative 4–30–93 (Register 93, No. 14).

### § 154. Permissible Advertising Content.

(a) A physician subject to these regulations, or any person acting on his or her behalf, may use, disseminate, or cause to be disseminated to the public, or any portion of the public, advertising copy which relates to any industrial injury or illness which accurately states:

(1) The name of each physician affiliated with or participating in the physician's practice.

(2) The address, telephone number and business hours of the office or offices.

(3) The areas of practice each physician engages in.

(4) An individual physician's appointment as a QME.

(5) A statement that the physician is Board Certified or limits his or her practice to specific fields as authorized by Business and Professions Code Section 651. Any statement of Board Certification shall include the name of the certifying board.

(6) Any languages spoken fluently by the physician or his or her staff.

(7) A description of any diagnostic or therapeutic facilities available.

(8) The availability of surgery or hospitalization on a lien basis.

(9) The usual time frame for scheduling appointments or producing medical reports.

(10) That all billings are made in compliance with the Official Medical Fee Schedule promulgated by the Administrative Director of the Division of Workers' Compensation.

(11) Biographic information concerning the physician's educational background, internships and residencies, hospital affiliations, professional affiliations and professional publications.

(b) Any physician who wishes to use, disseminate, or cause to be disseminated to the public, or any portion of the public, any advertising copy which relates to any industrial injury or illness which contains any material not specified in subsection (a) above, shall apply in writing to the Council for approval before using such material. The Council shall approve all requests which do not contain material which is false or likely to mislead the public with respect to workers' compensation. No advertising copy submitted to the Council pursuant to this subsection shall be used until the Council has given its written approval.

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 139, 139.2, 139.4 and 139.45, Labor Code.

HISTORY

1. New section filed 3–31–93; operative 4–30–93 (Register 93, No. 14).

### § 155. Filing of Complaints.

(a) Any person may file a complaint with the Medical Director, alleging that any physician is using advertising copy which violates the provisions of Business and Professions Code Section 651, or the provisions of these regulations.

(b) Complaints filed with the Medical Director shall be in writing and contain the following:

(1) The full name and address of the party filing the complaint.

(2) The full name and address of the physician against whom the complaint is made, or if the complainant is unable to identify the physician using the advertising, as much information as the complainant can provide to assist the Council in identifying the physician who used the advertisement.

(3) A copy, if available to the complaining party, of the advertising copy against which the complaint is made, or a description of the medium in which the advertising copy appeared. Such description should contain sufficient details regarding the manner and form in which the advertising copy was published to allow a copy of the advertising copy to be obtained by the Council.

(4) A detailed statement of the grounds on which the advertising copy is alleged to violate Business and Professions Code Section 651 or these regulations.

(5) All complaints filed under this section shall be filed with the Executive Medical Director, at either 395 Oyster Point Blvd., South San Francisco, CA 94080, or P.O. Box 8888, San Francisco, CA 94128–8888395.

(6) Nothing in these regulations shall prevent the Council or Medical Director from acting independently, and without receipt of a complaint, to initiate an investigation and issue a complaint on the Council's own motion whenever the Council or Medical Director has reason to believe that there has been a violation of Business and Professions Code Section 651 or these regulations.

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 139, 139.4 and 139.45, Labor Code.

HISTORY

1. New section filed 3–31–93; operative 4–30–93 (Register 93, No. 14).

### § 156. Council Requests to Review Advertising Copy.

(a) Upon receipt of a complaint under Section 155 of these regulations, the Council shall serve a written notice of complaint on the physician against whom the complaint was filed. Such notice shall direct the physician to file a copy of his or her advertising with the Medical Director within 15 working days of the date on which the notice was served.

(b) The Medical Director may take such steps as he or she deems necessary to determine whether the complaint has merit.

(1) The Medical Director shall respond to the complaint within 15 working days of the Council's receipt of the physician's response and notify the complainant that the Council:

(A) will investigate the complaint; or

(B) will require additional time to ascertain whether the complaint has merit; or

(C) will refer a copy of the complaint to another agency which also has jurisdiction over the subject matter of the complaint; or

(D) will take no further action on the complaint because the Council lacks jurisdiction over the person or conduct complained of; or

(E) will take no further action on the complaint because the allegations of the complaint do not warrant further action by the Council for the reasons stated in the response.

(c) At the time of filing the advertising copy with the Medical Director, the physician shall also file an answer to the complaint, briefly setting forth the grounds on which the physician believes the copy to be in compliance with Business and Professions Code Section 651, and the provisions of these regulations. Nothing contained in the answer shall preclude the right of the physician to present further or different grounds of defense before the Council or appropriate licensing board. Upon reviewing the physician's answer, the Medical Director may dismiss or informally resolve the complaint where he or she deems such action appropriate.

(d) The Council may, without receipt of a complaint, request a physician to provide a copy of any advertising used by that physician for review. Such a request shall be made in writing, and shall be personally served on the physician.

(e) If a physician who has been appointed as a QME fails to deliver a copy of the advertising used to the Council within 15 working days of receipt of the notice, the Council may infer from the failure to comply that the advertising material used by the QME is in violation of Business and Professions Code Section 651, or these regulations. The maximum penalty that the Council may impose for a finding of violation based solely on the negative inference created by this provision shall be suspension of the physician's appointment as a Qualified Medical Evaluator for a pe-

riod of six months followed by a period of probation not to exceed one year.

(f) If a non-QME physician fails to deliver a copy of the advertising used to the Council within 15 working days of receipt of the request, the Council shall refer the matter to that physician's licensing board for such proceedings as that board may deem proper.

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 139, 139.4 and 139.45, Labor Code.

HISTORY

1. New section filed 3-31-93; operative 4-30-93 (Register 93, No. 14).

### § 157. Determinations.

(a) If, after reviewing the physician's advertising copy and the physician's answer to the complaint, the Medical Director determines that the advertising copy violates Business and Professions Code Section 651, or these regulations, he or she shall submit a preliminary determination to the Council.

(b) If the Council sustains the Medical Director's preliminary determination, and the physician subject to the complaint is not a QME, the Medical Director shall forward a copy of the preliminary determination, the complaint, and all supporting documentation to the appropriate physician's licensing board for such proceedings as that board may deem proper.

(c) If the Council sustains the Medical Director's preliminary determination, and the physician subject to the complaint is a QME, the Council shall hold a hearing on the complaint in accordance with Chapter 4 (commencing with Sections 11370) of Part 1 of Division 3 of the Government Code.

(1) The Council may delegate in whole or in part to the Administrative Law Judge the authority to conduct the hearing and decide upon the complaint.

(2) Upon a decision being made regarding the complaint, the Administrative Law Judge, acting alone, or as advisor to the Council, shall file a copy of the written statement of findings and decision with the Council.

(d) Within 30 days of the date the written decision is served upon the QME, the QME may file a written notice of appeal with the Council requesting reconsideration by the Council of the Administrative Law Judge's decision. Upon receipt of the notice of appeal, the Chairperson of the Council shall appoint 3 Council members to serve as an appellate panel to hear and recommend to the Council, a decision on the appeal.

(1) The appeal panel shall review the entire record and may hold a hearing thereon.

(2) In the event of a hearing, the designated chair of the appeal panel shall fix the time and place of the hearing and notify the parties to the appeal in writing not less than 15 working days in advance of the hearing in accordance with Code of Civil Procedure Sections 1013a and 2015.5.

(3) The hearing on the appeal shall be limited to a review of the record before the Administrative Law Judge and such written and/or oral argument as the parties may submit.

(4) Upon reaching a decision on the appeal, the appeal panel shall submit to the Council a copy of the record and a written report summarizing the evidence, findings of fact, and a recommended decision. The Council shall take appropriate action on the recommended decision. If, for any reason, the Council rejects the appeal panel's decision, a complete copy of the record shall be furnished to each member of the Council for independent review before any action is taken by the Council in rendering a decision.

(5) The Council shall notify the complainant and the parties to the appeal of its decision in writing in accordance with Code of Civil Procedure Sections 1013a and 2015.5.

(6) The Medical Director shall promptly forward a copy of the Council's final decision to the appropriate physician's licensing board for such proceedings as that board may deem proper.

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 139, 139.4 and 139.45, Labor Code.

HISTORY

1. New section filed 3-31-93; operative 4-30-93 (Register 93, No. 14).

### § 158. Penalties.

(a) A QME who is found by the Council to have violated any provision of Business and Professions Code Section 651, or these regulations may have his or her QME status terminated, suspended, or placed on probation by the Council. Any probation imposed may have such conditions as the Council deems reasonable, including, but not limited to the publication of corrective advertising and the submission of future advertising copy for the Council's approval before its use.

(b) The Council shall consider the following factors in determining the appropriate penalty for a violation of Business and Professions Code Section 651, or these regulations:

1. the seriousness or materiality of the misrepresentation,
2. whether the physician cooperated with the investigation,
3. whether the violation was a single event, or appeared to be part of a pattern sufficient to demonstrate a business practice,
4. whether the violator has a record of prior discipline by the Council, Medical Board, or other appropriate licensing board or authority,
5. whether the violator has a record of contempt reprimands or adjudications issued by the Workers' Compensation Appeals Board.

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 139, 139.4 and 139.45, Labor Code.

HISTORY

1. New section filed 3-31-93; operative 4-30-93 (Register 93, No. 14).

### § 159. Severability.

If any portion of this chapter or the application of any part thereof to any person, individual, party, entity, or circumstance is held invalid, the remainder of the chapter and its application to any other person, individual, party, entity, or circumstance, shall not be affected thereby.

NOTE: Authority cited: Sections 139, 139.4 and 139.45, Labor Code. Reference: Sections 139, 139.4 and 139.45, Labor Code.

HISTORY

1. New section filed 3-31-93; operative 4-30-93 (Register 93, No. 14).

* * *

*Barclays Official*

# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

## Chapter 2. California Apprenticeship Council

Vol. 8

THOMSON
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# Chapter 2. California Apprenticeship Council

## Subchapter 1. Apprenticeship

## Article A–1. General Provisions

### § 200. General Provision.

If any provision of this chapter or application thereof to any person, individual, party, entity or circumstances is held invalid, the remainder of the chapter and the application to any other person, individual, party, entity or circumstances, shall not be affected thereby.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 1777.5 and 3081, Labor Code.

HISTORY

1. Revision of Chapter 2 filed 9–25–69; effective thirtieth day thereafter (Register 69, No. 39). For former sections and history, see Registers 67, Nos. 24 and 32, and 69, No. 19.
2. Amendment filed 8–27–76; effective thirtieth day thereafter (Register 76, No. 35).
3. Amendment filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).
4. Editorial correction of NOTE filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
5. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

## Article 1. Procedures for Investigating, Holding Hearings and Determining Disputes

### § 201. Filing of Complaints.

(a) Complaints may be filed by any interested person with the Administrator of Apprenticeship or the Administrator of Apprenticeship upon his/her own initiative may issue a complaint, within the time period specified below, when there is cause to believe that a decision, order or action of an apprenticeship program sponsor has been unfair or unreasonable; or that there has been a violation of:

(1) Chapter 4, Division 3 of the Labor Code (excluding Section 1777.5), 30 days;

(2) California Code of Regulations, Title 8, Chapter 2, Subchapter 1 (excluding Article 10), 30 days.

(3) Apprenticeship Standards, 30 days;

(4) Apprenticeship Agreements, 30 days;

(5) Equal Opportunity Standards, 180 days and shall be filed and conducted in accordance with the State of California Plan for Equal Opportunity Apprenticeship (see title 8, California Code of Regulations, Section 215);

(6) Rules, Regulations or Policies established by an apprenticeship program sponsor, 30 days.

(b) Complaints filed with, or by the Administrator of Apprenticeship shall contain the following:

(1) The full name and address of the party (person, organization, or other party) filing the complaint (hereinafter referred to as the "charging party").

(2) The full name and address of the party (person, organization, or other party) against whom the complaint is made (hereinafter referred to as the "respondent").

(3) A clear and concise statement of the facts constituting the basis for the complaint.

(4) The signature of the person filing the complaint or an authorized officer or agent in the case of an organization, employer, labor union, apprenticeship program sponsor, or other interested party.

(5) A declaration by the person signing the complaint, under penalties of law, that its contents are true and correct to the best of his/her knowledge and belief.

(c) Upon receipt or issuance of a complaint the Administrator of Apprenticeship shall cause a copy of such complaint to be served upon the respondent(s).

(d) Complaints may be withdrawn only with the consent of the Administrator of Apprenticeship.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3081 and 3082, Labor Code.

HISTORY

1. Amendment of subsection (c) filed 5–18–73; effective thirtieth day thereafter (Register 73, No. 20).
2. Amendment of subsection (a) filed 11–3–78; effective thirtieth day thereafter (Register 78, No. 44).
3. Editorial correction of subsection (b) filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
4. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).
5. Amendment filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90.
6. Editorial correction restoring section dropped from printing of Register 90, No. 17 (Register 90, No. 42).
7. Reinstatement of section as it existed prior to 4–9–90 emergency amendment filed 5–21–91 pursuant to Government Code section 11346.1(f) 120 days from effective date (Register 91, No. 47).
8. Amendment filed 4–10–92; operative 5–11–2 (Register 92, No. 21).
9. Amendment of subsections (a)(1)–(2) and amendment of NOTE filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

### § 202. Investigations, Holding of Hearings and Determinations.

(a) The Administrator of Apprenticeship, upon the timely receipt or issuance of a complaint under Section 201, shall investigate the matter to determine whether the complaint has merit, and in the course of such investigations, the Administrator of Apprenticeship may take such steps as he/she deems necessary under the circumstances to bring about an amicable adjustment of the controversy. In the event that there are local adjustment procedures which have been approved by the Chief DAS, the charging party(s) shall be referred to that procedure for a period not to exceed 60 calendar days prior to the filing and/or processing of a complaint under this section or Labor Code Section 3081. The referral for local adjustment shall in no way be construed so as to abrogate the statutory right to file a complaint under Section 3081 of the Labor Code. The Administrator of Apprenticeship shall dismiss any complaint that is not timely filed and may, following an investigation, dismiss any complaint that is found to be without merit. In such cases the Administrator of Apprenticeship shall prepare a statement of his/her findings and determinations and file it with the California Apprenticeship Council, and notify all parties to the complaint in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5 of his/her determination to dismiss the complaint. The determination of the Administrator shall be within sixty (60) calendar days of receipt or issuance of the complaint, provided that the sixty (60) days allowed for a local adjustment procedure shall not affect the time provided for the determination of the Administrator. Any continuance caused by the parties shall toll the running of the sixty (60) day period provided for the determination of the Administrator. If any party to the complaint requests a hearing within 10 days of receipt of the notice of dismissal of the complaint, the Administrator or his/her duly authorized representative shall conduct a hearing in the same manner as set forth in subdivision (b).

(b) If the matter is not dismissed, withdrawn or settled satisfactorily, the Administrator of Apprenticeship shall hold a hearing in accordance with the following procedure:

(1) He/she shall fix the time and place of the hearing and notify all interested parties to the complaint not less than two weeks in advance in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5 specifying the time and place of the hearing.

(2) The interested parties to the complaint shall be given an opportunity to present evidence and oral or written arguments in support of their positions.

(3) The hearing need not be conducted according to technical rules relating to evidence and witnesses.

(4) All witnesses testifying before the Administrator of Apprenticeship shall testify under oath.

(5) A full transcript of the hearing shall be taken by a qualified person.

(c) The Administrator of Apprenticeship or his/her duly authorized representative may conduct the investigation, hold the hearing, and decide on the complaint. The Administrator of Apprenticeship may however, delegate, or authorize a representative only to hold a hearing and to report, reserving the authority to decide on the complaint. In that case, the duly authorized representative shall hold a hearing and submit to the Administrator of Apprenticeship the entire record of the hearing together with his/her written recommendations. The Administrator of Apprenticeship shall read the record and the written recommendations before deciding on the complaint.

(d) In deciding on the complaint, the Administrator of Apprenticeship or his/her duly authorized representative shall prepare a statement of findings of fact, make a decision, file it with the California Apprenticeship Council and notify all parties to the complaint in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5 of the decision and of any action taken. The Administrator of Apprenticeship's decision on the complaint or any action taken shall be issued or taken no later than sixty (60) calendar days following the hearing.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3081 and 3082, Labor Code.

HISTORY

1. Amendment filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).
2. Editorial correction of NOTE filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
3. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).
4. Amendment of subsection (a) filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).

### § 203. Appeals to the California Apprenticeship Council.

(a) The following procedures shall be followed when an appeal is filed with the Council within ten (10) days from the date the parties are given notification of the determination. The parties shall be deemed to have been given notification five (5) days after notice has been sent to their address of record.

(1) The Chair of the Council shall appoint three (3) members of the Council to act as an appeal board and decide the appeal. This appeal board shall consist of one member of the Council representing an employee organization and one member representing an employer organization; the third member will be a member who does not represent either of the aforementioned groups and shall act as chair of the appeal board.

(2) The appeal board shall review the entire record and may hold an appeal hearing thereon.

(3) In the event of a hearing, the designated chair of the appeal board shall fix the time and place of the hearing on the appeal and notify all interested parties to the appeal not less than two weeks in advance in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5 specifying the time and place of the hearing.

(4) The hearing on the appeal shall be limited to a review of the record before the Administrator of Apprenticeship and to oral or written arguments by interested parties to the appeal; except where the appeal board finds that there is relevant evidence which, in the exercise of reasonable diligence, could not have been produced or which was improperly excluded at the hearing before the Administrator of Apprenticeship. In such cases, the appeal board may admit such evidence to supplement the record and exercise its independent judgment upon all of the evidence in the record. The appeal board may, in its independent judgment, refer the matter to the program sponsor for reconsideration of its prior action, in an attempt to resolve the matter amicably. An appellant apprentice, however, shall be entitled to file a new complaint in accordance with Title 8, Chapter 2, Section 201 of the California Administrative Code.

(5) The appeal board shall submit a written report to the Council summarizing the evidence, findings of fact, and recommended decision. The Council shall take appropriate action on the recommended decision. If for any reason the Council rejects the appeal board's recommended decision, a complete copy of the record shall be furnished each member of the Council for independent review and consideration before any action is taken by the Council in rendering a decision.

(6) The Council will timely notify all parties to the appeal of its decision in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3082, 3083 and 3084, Labor Code.

HISTORY

1. Amendment filed 8–27–76; effective thirtieth day thereafter (Register 76, No. 35).
2. Amendment filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).
3. Editorial correction of NOTE filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
4. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).
5. Amendment filed 6–4–85; effective thirtieth day thereafter (Register 85, No. 23).
6. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).

## Article 2. Definitions

### § 204. Declaration of Policy.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071, 3073, 3076–3078, 3080–3084 and 3096, Labor Code.

HISTORY

1. Amendment of subsection (b) and (c) filed 11–3–78; effective thirtieth day thereafter (Register 78, No. 44).
2. Amendment of Article 2 heading and repealer of Section 204 filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

### § 205. Definitions.

(a) "Journeyman" means a person who has either

(1) completed an accredited apprenticeship in his/her craft, or

(2) who has completed the equivalent of an apprenticeship in length and content of work experience and all other requirements in the craft which has workers classified as journeyman in the apprenticeable occupation.

(b)"Instructor" means a person who has either

(1) completed an accredited apprenticeship in his/her craft, or

(2) who has completed the equivalent of an apprenticeship in length and content of work experience and all other requirements in the craft but may not necessarily be designated as a journeyman.

(c) An "Apprenticeable Occupation" is one which requires independent judgment and the application of manual, mechanical, technical, or professional skills and is best learned through an organized system of on–the–job training together with related and supplemental instruction.

(d) "Registration of an Apprentice Agreement"means the acceptance and recording thereof by the Division of Apprenticeship Standards which serves as evidence of the participation of the apprentice in a specific apprenticeship program.

(e) "Apprenticeship Program" means a comprehensive plan containing, among other things, apprenticeship program standards, committee rules and regulations, related and supplemental instruction course outlines and policy statements for the effective administration of that apprenticeable occupation.

(f) "Apprenticeship Program Standards" means that written document containing among other things all the terms and conditions for the qualification, recruitment, selection, employment and training, working conditions, wages, employee benefits, and other compensation for apprentices and all other provisions and statements including attachments as required by the Labor Code and this Chapter which, when approved by the Chief

DAS, shall constitute registration of such, and authority to conduct that program of apprenticeship in the State of California.

(g) "Apprenticeship Program Sponsor" means a joint apprenticeship committee, a unilateral labor or management committee, or an individual employer program.

(h) "Related and Supplemental Instruction" means an organized and systematic form of instruction designed to provide the apprentice with knowledge including the theoretical and technical subjects related and supplemental to the skill(s) involved.

(i) "Competent Evidence" as used in Section 224 means a transcript or abstract of the record required to be maintained pursuant to Section 212(c)(6), or an attestation by the apprentice program sponsor stating that all training has been fully completed, on forms to be provided by the Division of Apprenticeship Standards, demonstrating that the apprenticeship program has been fully complete, certified by the apprenticeship program sponsor and endorsed by a representative of the Division of Apprenticeship Standards.

(j) An "Interested Party" for the purpose of application for approval of an apprenticeship program, means an employer, employer organization or association, a group of employers, employer associations or organizations, an employe association or organization, or employee representatives, a group of employee representatives, associations or organizations, labor and/or management groups or any combination thereof whose interest may be affected by the apprenticeship program if approved.

(k) "Maintenance" is defined as routine, recurring and usual work for the preservation, protection and keeping of any facility for its intended purposes in a safe and continually usable condition.

(l) The term "Chief DAS" means the Chief of the Division of Apprenticeship Standards.

(m) "Employed as an apprentice" in the building and construction industry for the purpose of Labor Code Section 3098 means employment pursuant to the approved standards of apprenticeship of the Program, under the supervision of journeyman/men, where the apprentice is receiving at least the minimum wage applicable to the apprentice's period of apprenticeship as provided for in this chapter.

(n) "Geographic Area of Operation" of an apprenticeship program means the geographic area in which the program regularly operates and trains apprentices.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071, 3073, 3075, 3077, 3079, 3086 and 3090, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 8–27–76; effective thirtieth day thereafter (Register 76, No. 35).
2. Amendment filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 3).
3. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).
4. Amendment of subsection (f) and new subsection (l) filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
5. New subsections (m) and (n) filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

### § 206. Approval and Registration of Apprentice Agreements.

(a) Agreements approved by Joint Apprenticeship Committee

(1) An apprentice agreement in an approved joint apprenticeship program shall be approved by the joint apprenticeship committee if the agreement complies with the apprenticeship program standards and Chapter 4 of Division 3 of the Labor Code and its implementing regulations under Title 8, California Code of Regulations, Section 200 et seq; and where there are adequate related and supplemental instruction and an assurance of employment to provide on–the–job training.

(2) After approval by the joint apprenticeship committee, the agreement shall be sent to DAS for registration within thirty (30) days of its execution by the apprentice.

(3) DAS shall register the agreement if DAS determines that it was approved in accordance with the requirements set out above, under subsection (a)(1), and it was submitted to DAS within thirty (30) days of its execution by the apprentice.

(4) Within thirty (30) days of receipt of the agreement, DAS shall either register the agreement or return it to the program sponsor with the reasons for non–registration. If DAS registers the agreement, the registration shall be effective as of the date of its execution by the apprentice.

(b) Agreements approved by the Administrator

(1) If there is no joint apprenticeship committee, the apprenticeship agreement shall be sent to DAS for approval by the Administrator within thirty (30) days of its execution, and shall be approved if the Administrator determines that it complies with the requirements set out above, under subsection (a)(1), and it was submitted to DAS within thirty (30) days of its execution by the apprentice.

(2) If approved, the agreement shall be considered registered as of the date of its execution by the apprentice. A copy of the approved agreement shall be filed with the CAC for its review. If the Administrator does not approve the agreement, it shall not be registered and shall be returned to the program sponsor within 30 days of the date of receipt with the reasons for non–approval.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071, 3079 and 3080, Labor Code.

HISTORY

1. New section filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3). For prior history, see Register 85, No. 4.

### § 207. Termination of Apprentice Agreements.

(a) During the probationary period, if any, an apprentice agreement shall be terminated by the program sponsor at the request in writing of either party.

(b) After the probationary period, or where there is no probationary period, the apprentice agreement may only be terminated by the Administrator. Where there is mutual agreement of the parties, an apprentice agreement may be terminated by submitting to the Administrator a request in writing to terminate the agreement signed by the parties. Where there is not mutual agreement, either party may request that the agreement be terminated by the Administrator. The party making the request shall submit whatever evidence it believes shows that there is good and sufficient reason to terminate the agreement. The Administrator shall review the evidence and, where there is good and sufficient reason, shall terminate the agreement. No program sponsor shall submit a request to terminate an apprentice agreement unless it shall first have given the apprentice notice in writing of its intended action and, if the program's standards provide for a local adjustment procedure, of the apprentice's right to exhaust the local adjustment procedure. In its request, the program sponsor shall advise the Administrator of the notice to the apprentice. An apprentice who contests a program sponsor's request for termination may also file a complaint under Section 201. If a complaint is filed, the Administrator shall join the request for termination with the apprentice complaint, and act upon both jointly.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3077, 3078, 3079 and 3080, Labor Code.

HISTORY

1. New section filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3). For prior history, see Register 85, No. 4.

## Article 3. Standards for Minimum Wages, Maximum Hours and Working Conditions

### § 208. Wages, Employee Benefits, and Other Compensation for Apprentices.

(a) For Apprentices In All Occupations Except The Building And Construction Industry:

For apprentices participating in approved apprenticeship programs in all industries, except the building and construction industry, the beginning wage rate, employee benefits and other compensation, and the progression of those rates, shall be decided by the sponsoring program in consultation with and subject to the approval of the Chief DAS.

(b) For Apprentices In The Building And Construction Industry Employed On Public Works Projects:

For apprentices participating in approved apprenticeship programs in the building and construction industry, the wages and employer payments for employees benefits as defined in 8 C.C.R. §16000 for regular and overtime work while employed on public works projects within the meaning of Labor Code §1720 et seq. shall be the per diem wage rates for apprentices in the apprenticeable occupation as determined by the Director of Industrial Relations in the geographic area of the project.

(c) For Apprentices In The Building And Construction Industry Employed On Projects Not Covered By Subsection (b), Above:

The hourly wage package as used herein consists of the total of the wages and employer payments for employee benefits as defined in 8 C.C.R. § 16000. For apprentices participating in approved apprenticeship programs in the building and construction industry, the minimum hourly wage package for apprentices while employed on projects not covered by Subsection (b) above shall be as set forth either in subsections (1)–(5) of this subsection or, in the alternative, as set forth in subsection (6) of this subsection:

(1) A starting hourly wage package for first– period apprentices of not less than 40 percent of the prevailing per diem wage package for journeymen in the apprenticeable occupation and geographic area of the project, as determined by the Director of Industrial Relations for purposes of Labor Code § 1720 et seq., using the rate effective on the immediately preceding March 1. At least 65 percent of this minimum hourly wage package must be paid to the apprentice as taxable wages;

(2) If there is no prevailing hourly wage package and wage package progression determined by the Director for journeymen for the apprenticeable occupation and geographic area, a starting wage rate decided by the sponsoring program in consultation with and subject to the approval of the Chief DAS based on consideration of the minimum starting hourly wage package and wage package progression for apprentices in the most analogous occupations and geographic areas;

(3) Where an employer elects to satisfy a portion of the hourly wage package by employer payments for employee benefits as defined in 8 C.C.R. § 16000, the payment of such contributions must be verifiable and the cost of the benefit(s) must be reasonably related to the amount of the contribution(s). The employer shall submit its books and records to an audit by the DAS staff, upon request, to verify such payments;

(4) Where an employer elects not to satisfy a portion of the apprentice's hourly wage package by employer payments for employee benefits as defined in 8 CCR § 16000, the employer shall pay the entire hourly wage package to the apprentice on the apprentice's paycheck. Where an employer elects to satisfy a portion of the apprentice's hourly wage package by employer payments for employee benefits, the employer shall pay the remainder of the apprentice's hourly wage package to the apprentice in the apprentice's paycheck;

(5) The minimum hourly wage package shall increase for each successfully completed period of apprenticeship to a higher percentage of the prevailing per diem wage package for journeymen in the apprenticeable occupation and geographic area of the project. These periodic increases in percentage shall be equal (e.g., 40 percent, 50 percent, 60 percent, etc.) and shall be such that the minimum hourly wage package in the final period of apprenticeship is not less than 80 percent of the prevailing per diem wage package for journeymen in the apprenticeable occupation and geographic area of the project, as determined by the Director, using the rate effective on the immediately preceding March 1. At least 65 percent of this minimum hourly wage package must be paid to the apprentice as taxable wages;

(6) In the alternative, a contractor will be in compliance with this entire subsection (c) if the contractor provides the same total hourly wage package and wage package progression to apprentices employed on private projects as the contractor provides to apprentices employed on public works projects in the same geographic area, and that total hourly wage package is not less than the prevailing per diem apprentice wage package for the apprenticeable occupation and the geographic area of the project;

(7) Existing apprenticeship programs already approved by the DAS and the CAC which are not in compliance with any aspect of this Subsection (c) shall have until February 17, 2002, to come into full compliance;

(8) By the enactment of this regulation, it is not the CAC's intent to change the manner by which the Director of Industrial Relations currently determines the prevailing wage rate, and the provisions of this Subsection (c) shall not be used to determine the prevailing wage rate.

(9) After February 17, 2002, all contractors employing registered apprentices shall pay not less than the minimum wages required by this subsection (c).

(d) For All Apprentices

Nothing in this Section shall permit the payment of less than the minimum wage prescribed by the Federal Fair Labor Standards Act or any applicable State minimum wage order.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 1777.5, Labor Code.

HISTORY

1. Amendment filed 11–5–75; effective thirtieth day thereafter (Register 75, No. 45).
2. Amendment filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).
3. Editorial correction of Article 3 heading filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).
4. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
5. Amendment of section heading, repealer and new section filed 9–6–95; operative 10–6–95 (Register 95, No. 36).
6. Amendment of section and NOTE filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

### § 209. Overtime Provision.

Overtime shall not interfere with or impair the training and shall not be detrimental to the health and safety of apprentices.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 3078, Labor Code.

HISTORY

1. New NOTE filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
2. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

### § 210. Working Conditions.

Apprentices shall work under and with competent journeymen and/or instructors and shall be assigned to work and learning tasks so that they obtain the diversified training on–the–job provided for in the apprenticeship standards.

NOTE: Authority cited: Sections 3071 and 3078, Labor Code. Reference: Section 3071, Labor Code.

HISTORY

1. New NOTE filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
2. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

## Article 4. Apprenticeship Standards

### § 211. Apprenticeable Occupations.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3076 and 3077, Labor Code.

HISTORY

1. Repealer filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).

### § 212. Content of Apprenticeship Program Standards.

Apprenticeship programs shall be established by written apprenticeship standards which must be approved by the Chief DAS under Section 212.2. In order to be approved, the standards must cover all work processes within the apprenticeable occupation. The standards must contain:

(a) A statement of:

(1) the occupation(s) and an outline of the work processes in which the apprentice will receive supervised work experience and training on the job, and the allocation of the approximate time to be spent in each major process;

(2) the parties to whom the standards apply, the program sponsor's labor market area, as defined by Section 215 appendix 2(*l*), for purposes of meeting equal employment opportunity goals in apprenticeship training and the program's geographic area of operation as defined by section 205(n);

(3) the duties of the apprentice;

(4) the apprentice's working conditions unique to the program;

(5) the progressively increasing wage, employee benefits and other compensation of the apprentice, as set by Section 208;

(6) the ratio of apprentices to journeymen, or the number of apprentices to be employed and the method used to determine the ratio whether by job site, workforce, department or plant;

(7) the local education agency which has agreed to provide the related and supplemental instruction, and a description of the courses to be provided;

(b) Provisions for:

(1) establishment of an apprenticeship committee, if applicable;

(2) administration of the standards;

(3) establishment of rules and regulations governing the program. An apprenticeship program's standards or rules may provide for a period of probation which may not be for more than the combination of 1,000 hours of employment and 72 hours of related instruction;

(4) determining the qualifications of employers if other than single employer programs and an orientation, workshop, or other educational session for employers to explain the apprenticeship program's standards and the operation of the apprenticeship program;

(5) determining the qualifications of apprentice applicants and fair and impartial treatment of applicants for apprenticeship selected through uniform selection procedures, which shall be an addendum to the standards, pursuant to Section 215;

(6) the incorporation of the provisions of the standards into the apprentice agreement either directly or by reference;

(7) a procedure to be utilized for the recording and maintenance of all records concerning apprenticeship and otherwise required by law including a system for recording the apprentice's worksite job progress and progress in related and supplemental instruction and a system for the periodic review and evaluation of the apprentice's progress in job performance and related instruction;

(8) discipline of apprentices for failure to fulfill their obligations on-the-job or in related instruction, including provisions for fair hearings;

(9) terminating, or recommending the cancellation of, apprentice agreements in accordance with section 207;

(10) recommending issuance of State Certificates of Completion of Apprenticeship pursuant to Section 224;

(11) training and supervision, both on the job and in related instruction, in first aid, safe working practices and the recognition of occupational health and safety hazards;

(12) training in the recognition of illegal discrimination and sexual harassment;

(13) approval of the standards, and revisions to the standards, by the Chief DAS;

(14) an adequate mechanism to be used for the rotation of the apprentice from work process to work process to assure the apprentice of complete training in the apprenticeable occupation including mobility between employers when essential to provide exposure and training in various work processes in the apprenticeable occupation; and an adequate mechanism that will be used to provide apprentices with reasonably continuous employment in the event of a lay-off or the inability of one employer to provide training in all work processes as outlined in the standards;

(15) the on-going evaluation of the interest and capacity of individual employers to participate in the apprenticeship program and to train apprentices on-the-job and provisions for the evaluation of on-the-job training and related and supplemental instruction;

(16) compliance with training criteria where such have been adopted pursuant to Section 212.01; and

(17) meaningful representation of the interests of apprentices in the management of the program, which is shown where:

(A) In a joint labor-management sponsored program, the apprentices participating in that program are represented by a labor organization pursuant to one of the following: National Labor Relations Act, the Railway Labor Act, the California Public Employee Relations Act, Agricultural Labor Relations Act, the Meyers-Milias Brown Act;

(B) In a program sponsored by more than one employer or an association of employers, the apprentices participating in that program are at least equally represented on an advisory panel established by the apprenticeship committee responsible for the operation of the program. The apprentices shall be represented on the advisory panel by at least three representatives of the apprentices' choice who shall have full voice and vote on the panel except as to financial matters or matters that relate to the administration or structure of an employee benefit plan or the administration or operation of a trust fund. The representatives of the apprentices shall be selected by way of a secret ballot election among the apprentices conducted by the apprenticeship program not less than once every two (2) years. This advisory panel shall meet not less than once every quarter to address issues and concerns raised by and affecting the apprentices in the program.

(c) The names and signatures of the parties.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3060, 3071, 3073, 3075 and 3078, Labor Code.

HISTORY

1. Amendment of subsection (c) filed 5-7-75; effective thirtieth day thereafter (Register 75, No. 19).
2. Amendment of subsection (a)(8) filed 11-5-75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment filed 8-15-79; effective thirtieth day thereafter (Register 79, No. 33).
4. Amendment filed 9-27-82; effective thirtieth day thereafter (Register 82, No. 40).
5. Amendment of initial paragraph and subsection (c)(15) filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 36).
6. Amendment filed 9-6-95; operative 10-6-95 (Register 95, No. 36).
7. Amendment of section and NOTE filed 1-17-2002; operative 2-16-2002 (Register 2002, No. 3).

## § 212.01. State-Wide Minimum Industry Training Criteria.

(a) The California Apprenticeship Council ("Council") may adopt state-wide minimum industry training criteria adopted by a particular industry training committee established pursuant to the provisions of this section, unless the particular committee cannot establish such criteria by its deadline as provided under this section, in which case the CAC may otherwise determine state-wide minimum industry training criteria to be utilized in accordance with the provisions of this section.

(b) The following procedures shall be followed when initially establishing the minimum industry training criteria:

(1) A committee shall be established by the Chair of the Council for each apprenticeable construction-industry craft or trade, and may be established by the Chair of the Council for any apprenticeable non-construction industry craft or trade. The Chair shall appoint a minimum of eight (8) members in the following categories: two signatory employer representatives, two non signatory employer representatives, two signatory employee representatives, and two non signatory employee representatives. The term of each member shall be three years. The Chair may appoint additional members in the same proportion. The Chair shall appoint members from among candidates supplied by the sponsors of apprenticeship programs approved or proposed for approval under the Shelley-Maloney Apprentice Labor Standards Act of 1939, Chapter 4 (commencing with Section 3070) of Division 3 of the Labor Code ("Shelley-Maloney Act") in the particular craft or trade. The Chair shall notify all programs approved or proposed for approval under the Shelley-Maloney Act in the particular craft or trade of the Chair's intent to form such committee or appoint committee members at least 45 days before making such appointments, and must provide such programs with a period of at least 30 days within which to submit candidates to the Chair. Where programs do not supply sufficient candidates in the categories required to the

Chair within the period provided or where there are no programs to supply candidates, the Chair may select individuals working in the particular craft or trade to complete the committee. The Chair shall endeavor to appoint members from all segments of the industry.

(2) Committee action shall require a two–thirds majority vote of the members in attendance at a duly constituted meeting. For the purpose of this section, a duly constituted meeting shall mean that a quorum consisting of a majority of the entire committee is in attendance.

(3) The committee shall meet as often as necessary at the call of its chair. The chair of the committee shall be appointed annually by the Chair of the Council. The chair of the committee shall rotate between signatory and non signatory representatives.

(4) The committee shall establish the state–wide minimum industry training criteria for the trade or craft for which it was established, the content of which shall encompass all the requirements of Section 212 of these regulations and the following topics in addition thereto: length of training, related classroom instruction, types of work processes and the skills to be learned, on–the–job training, competency testing, and apprenticeship program completion percentages. The criteria for the barbering, cosmetology, skin care and nail care trades shall be consistent with the standards for licensure in these trades required by the State Board of Barbering and Cosmetology.

(5) The committee shall formulate the state–wide minimum industry training criteria for the applicable trade or craft no later than twelve months from the date of its first meeting, unless extended by the Council. The Council shall endeavor to complete its review of the criteria by the second regularly scheduled meeting of the Council following the submission. If the Council does not approve the criteria, the submission shall be promptly returned to the committee with the Council's written reasons and a new deadline for resubmission to the Council.

(c) Every three years following the adoption of a particular set of state–wide minimum industry training criteria, the particular committee shall meet to review the criteria, and revise it, if necessary, subject to approval by the Council.

(d) Every apprenticeship program approved or proposed for approval under the Shelley–Maloney Act in a particular craft or trade for which state–wide minimum industry training criteria has been adopted shall conform to such criteria in its operations no later than one (1) year after adoption of such criteria by the Council.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3073, 3073.2 and 3078, Labor Code.

HISTORY

1. New section filed 9–27–96; operative 10–27–96 (Register 96, No. 39).
2. Amendment of section heading and NOTE filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).
3. Amendment of section heading and section filed 6–19–2007; operative 7–19–2007 (Register 2007, No. 25).

## § 212.1. Reciprocal Approval of Apprenticeship Programs.

Apprenticeship programs and standards of employers and unions in other than the building and construction industry, which jointly form a sponsoring entity on a multistate basis and are registered pursuant to all requirements of Title 29 Code of Federal Regulations, Part 29, as adopted February 15, 1977, by any recognized State Apprenticeship Agency/ Council or by the Bureau of Apprenticeship and Training, U.S. Department of Labor, shall be accorded approval reciprocity by the Chief DAS, if such reciprocity is requested by the sponsoring entity.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Section 3071, Labor Code.

HISTORY

1. New section filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).
2. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).

## § 212.2. Eligibility and Procedure for DAS Approval of an Apprenticeship Program.

(a) To be eligible for approval, a program must comply with all applicable federal and state law and regulations. A revision to change the program's occupation or to change the program's geographic area of operation to include a different labor market area is subject to the same application and approval process set out in (a)–(j) of this section for approval of a program, including providing notice of the proposed revision and an opportunity for comment to existing programs in the same apprenticeable occupation in the labor market area. The program sponsor shall submit to the Chief, DAS, an application for approval of the program and shall provide the program standards and, either with the application or during the application review process, evidence of:

(1) commitment to provide safe work site facilities and safe equipment sufficient to train the apprentices;

(2) commitment to provide skilled workers as trainers at the work site who meet the criteria for journeyman or instructor as defined in Section 205(a) or (b);

(3) adequate arrangements for related and supplemental instruction pursuant to Labor Code section 3074;

(4) ability to offer training and supervision in all work processes of the apprenticeable occupation;

(5) the program sponsor's ability, including financial ability, and commitment to meet and carry out its responsibility under the federal and state law and regulations applicable to the apprenticeable occupation and for the welfare of the apprentice.

(b) The training must be in an apprenticeable occupation as defined in Section 205(c) and must conform to the requirements of Section 215 concerning equal opportunity in apprenticeship;

(c) Within thirty days after receipt of an application for approval of a program, or for approval of a revision to change the occupation or to change the program's geographic area of operation to include a different labor market area, the Chief DAS shall notify the sponsor in writing either that: (1) the application is complete and accepted for filing; or (2) the application is incomplete and specified additional information is required;

(d) Where a collective bargaining agreement exists, a program shall be jointly sponsored unless either party to the agreement waives its right to representation in writing;

(e) If the standards or collective bargaining agreement of a program proposed by an employer or employers' association provide for participation by a union in the operation of the program, the sponsor shall provide evidence that the union accepts or does not oppose the program. The union may submit comments on the proposed program within thirty days after receipt of the proposed standards. The Chief may, in his or her discretion, consult with such union concerning the proposed program;

(f) If the standards and collective bargaining agreement of a program proposed by an employers' association do not provide for participation by a union in the operation of the program, the sponsor shall serve a copy of the proposed standards and any supplement thereto on the union, if any, which is the collective bargaining agent of the employees to be trained. The union may submit comments on the proposed program within thirty days after receipt of the completed standards. The Chief may, in his or her discretion, consult with such union concerning the proposed program;

(g) Upon receipt of the proposed standards of a program, the Chief shall serve a copy of the proposed standards and any supplement thereto on the sponsor of each existing program in the apprenticeable occupation in the labor market area of the program, unless the program has advised the Chief DAS that it does not wish to be so notified. Each such existing program may submit comments on the proposed program within thirty days after receipt of the completed standards. The Chief may, in his or her discretion, consult with such existing program concerning the proposed program;

(h) The Chief may, in his or her discretion, hold a hearing on any issue relating to the compliance of a proposed program with federal and state law and regulations. The Chief shall provide notice of, and an opportunity to attend, the hearing to the sponsor and to any union or existing program that is entitled to submit comments under this section. The hearing shall be conducted informally without the application of formal rules of evidence or procedure;

(i) The Chief's decision whether to approve a program shall be issued within ninety days after the receipt of the completed application for approval. The decision shall be served on the sponsor and on each party which submitted comments on the proposed program. The decision shall be in writing and shall set forth the relevant findings of fact, a discussion of any issues raised by any comments or at any hearing and the reasons for the decision;

(j) The median time for processing an application to train apprentices, from the receipt of the initial application to the final approval decision, based on the experience in the two years preceding the proposal of this Section, is two years. The minimum time is one and a half years, and the maximum time is three years.

(k) The Chief's decision approving or disapproving a proposed program shall be final and become an Order of the Council if no appeal is filed within 30 days following service of the decision on the parties. The appeal may be filed by the sponsor or by any union or existing program which was authorized to and did submit comments under this section;

(l) The chairperson of the Council shall refer the appeal, if any, to a three member panel which shall submit a recommendation to the full Council. The Panel's recommendation shall be submitted no later than the second regularly scheduled meeting of the Council after the filing of the appeal. The panel may, in its discretion, hold a hearing if the Chief did not hold a hearing in the consultation process. The hearing shall be conducted in compliance with Section 203.

(m) The Council may affirm, reverse, or modify the decision of the Chief or of the appeal panel. The decision of the Council on an appeal shall be final.

(n) All documents, notices and appeals filed or served under this Section shall be filed or served in accordance with Section 229.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3073, 3075 and 3090, Labor Code.

HISTORY

1. New section filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).
2. Amendment filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
3. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
4. Amendment of section heading and section filed 9–6–95; operative 10–6–95 (Register 95, No. 36).
5. Amendment filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

## § 212.3. Apprenticeship Program Self–Assessment and Audits.

(a) Each apprenticeship program shall annually prepare and submit a Self–Assessment Review as well as a Program Improvement Plan to the Chief DAS; provided, however, that a program is not required to submit a Review and a Plan in the first year of its existence.

(b) The Self–Assessment Review shall contain an objective and critical appraisal of the following items at a minimum:

(1) curriculum and instruction;
(2) supervision and management;
(3) individual apprentice training plans;
(4) use of competent and qualified personnel;
(5) utilization of facilities, equipment and material;
(6) community, business and industry involvement;
(7) recruitment, assessment and placement;
(8) program promotion;
(9) program accountability;
(10) safety and drug–free environmental training; and
(11) training in the recognition of sexual harassment and illegal discrimination.

(c) The Program Improvement Plan shall contain provisions by which the program sponsor(s) represent that good faith efforts shall be made to improve identified deficiencies in program operations and in the training of apprentices. Such Plan shall contain at a minimum:

(1) remedial priorities;
(2) program improvement objectives;
(3) identification of personnel, resources, and action needed; and
(4) timelines for completion of objectives.

(d) The Chief DAS shall select a program for random audit using a method that is not based on factors specific to that audit subject. A program may be selected for random audit only once during each five–year period beginning January 1, 2000. A program may be selected for non–random audit at any time if:

(1) there have been at least two previous final determinations that the program has violated laws or regulations regulating apprenticeship; or

(2) the Chief, DAS, as the result of a previous audit under this section, has identified violations of the program's standards or laws or regulations regulating apprenticeship and believes that the violations may not have been remedied.

(e) A program that has been selected for audit shall be notified by the Chief DAS fourteen (14) days prior to the commencement of the audit. The notice shall state whether the audit is a random audit or non–random.

(f) An audit of a program shall include a review of the program records, including records of apprentice training and related and supplemental instruction; inspection of the program's training facilities; visits to on–the–job training locations; and review of individual apprentice records. Apprentice records may be reviewed by a method of random selection and not every apprentice record need be reviewed so long as a sufficient number are reviewed to fairly evaluate the program. The Chief DAS shall provide a copy of the proposed audit report to the program within 30 days of the completion of the audit. The program shall have 14 days following receipt of the report to make comments. The Chief DAS may reopen the audit in response to any comments, and shall submit a final audit report, taking into account any comments, to the California Apprenticeship Council within 10 days following the final completion of the audit.

(g) Audit reports shall not include the name, address or social security number or other identifying information about any apprentice and shall not include any medical or other confidential information about any apprentice.

(h) The audit report prepared by the Chief DAS for presentation to the California Apprenticeship Council shall contain recommendations for remedial action to correct deficiencies, if any, and a proposed time schedule for doing so. The Chief DAS shall report at each regular California Apprenticeship Council meeting the status of each audit, including whether or not the deficiencies identified in the audit report have been corrected.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3073, 3073.1, 3074, 3074.3, 3075, 3078 and 3090, Labor Code.

HISTORY

1. New section filed 9–27–96; operative 10–27–96 (Register 96, No. 39).
2. Amendment of section heading, repealer of subsections (d)–(e), new subsections (d)–(h) and amendment of NOTE filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

## § 212.4. Deregistration of Programs.

The deregistration of a program cancels the approval of a program to operate.

(a) The Chief DAS shall deregister an apprenticeship program upon the request of the sponsor as long as within fifteen days of the Chief's acknowledgment of the request for deregistration, the sponsor shall inform each apprentice in writing of the deregistration, the proposed effective date of the deregistration and the names and addresses of other programs in the area. The Chief shall not deregister the program unless the sponsor complies with this requirement.

(b) The Chief may deregister an apprenticeship program, if the program is not conducted, operated and administered in accordance with applicable federal and state law and regulations or the program's approved apprenticeship standards, or if a program has had no active apprentices for a period of two (2) years, except that deregistration proceedings for violation of equal opportunity requirements shall be processed in accordance with Section 215:

(1) If the Chief has information that a program is not being operated in accordance with applicable federal and state law and regulations or the program's approved apprenticeship standards, the Chief shall so notify the program sponsor in writing sent by registered or certified mail, with return receipt requested. The notice shall identify the violation and the action needed to correct the violation. The notice shall state that the program will be deregistered unless corrective action is completed within thirty days. Upon a showing of good cause, the Chief may grant the sponsor a reasonable extension of time to achieve corrective action. Where the Chief has information that a program has had no active apprentices for a period of two (2) years, that shall be considered grounds for deregistration and the Chief shall notify the program sponsor in writing as set forth above that the program will be deregistered unless the program can show good cause within thirty (30) days why it should not be deregistered;

(2) The Chief shall advise the sponsor in every reasonable way to help the program sponsor correct the violation;

(3) If the required correction is made, the Chief may periodically review the program to see that the correction is maintained;

(4) If the required correction is not completed, or if a program which has had no active apprentices for a period of two (2) years fails to show good cause why it should not be deregistered, within the allotted time, the Chief shall send a notice to the sponsor, by registered or certified mail, return receipt requested. The notice shall:

(A) State that it is sent pursuant to this subsection;

(B) Indicate that the program has had no active apprentices for a period of two (2) years and has failed to show good cause why it should not be deregistered; or identify the violation with particularity, state when it was called to the sponsor's attention, identify the correction required and state that the sponsor has failed or refused to correct the violation;

(C) State that the Chief will recommend that the Administrator deregister the program unless the sponsor requests a hearing within fifteen days of the date of the notice;

(5) If the sponsor does not request a hearing, the Chief shall transmit to the Administrator a report containing all pertinent facts and circumstances concerning the violation, including the findings and recommendation for deregistration, and copies of all relevant documents and records. Statements concerning interviews, meetings and conferences shall include the time, date, place, and persons present. The Administrator shall make a final order on the basis of the record.

(6) If the sponsor requests a hearing, the Chief shall transmit to the Administrator a report containing all the data listed in subparagraph (5) above. The Administrator shall hold a hearing in accordance with Section 202, and shall make a final decision on the basis of the record, including the proposed findings and recommended decision of the Chief. At the Administrator's discretion, he/she may allow the sponsor a reasonable period of time to achieve corrective action.

(7) The decision of the Administrator concerning deregistration of a program shall be final and become an order of the Council unless an appeal is filed by the sponsor with the Council within thirty (30) days following the date the decision is issued. If the program is deregistered, and no appeal to the Council is filed, the deregistration shall be effective sixty (60) days following the date the Administrator's Decision was issued.

(8) The sponsor may appeal the Administrator's Decision to the Council. If an appeal is filed, the procedures of Section 203 shall be followed. The Decision of the Council shall be final and shall be effective thirty (30) days following the date the Council's Decision is issued.

(9) Upon issuance of the Administrator's Decision to deregister, the Administrator shall make public notice of this Decision and shall notify the sponsor and other programs in the same occupation and in the same labor market area. Within 15 days of service of the Administrator's Decision, the sponsor shall notify each apprentice of the Administrator's Decision to deregister the program. The sponsor shall inform each apprentice that, if the deregistration decision becomes final, it automatically terminates the apprentice's individual registration. The sponsor shall provide each apprentice with the names and addresses of other programs in the area. Finally, the sponsor shall provide Chief, DAS, with proof of said mailing.

NOTE: Authority cited: Sections 3071 and 3081, Labor Code. Reference: Sections 3073, 3075, 3078, 3081, 3082, 3083 and 3090, Labor Code.

HISTORY

1. New section filed 9-6-95; operative 10-6-95 (Register 95, No. 36).
2. Amendment filed 1-17-2002; operative 2-16-2002 (Register 2002, No. 3).

### § 213. Discipline—Cancellation.

The apprenticeship program standards may provide for the disciplining of apprentices for failure to fulfill their obligations on-the-job or in related instruction. Disciplinary measures may include provisions for the suspension of an apprentice for a period not to exceed sixty (60) days. Standards may provide for a recommendation to the Administrator of Apprenticeship for the immediate cancellation of the apprentice agreement for good and sufficient reason.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Section 3071, Labor Code.

HISTORY

1. Amendment filed 5-24-74; effective thirtieth day thereafter (Register 74, No. 21).
2. Amendment filed 8-15-79; effective thirtieth day thereafter (Register 79, No. 33).
3. Amendment filed 9-27-82; effective thirtieth day thereafter (Register 82, No. 40).

### § 214. Approved Forms.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071, 3073, 3076-3078, 3080-3084 and 3096, Labor Code.

HISTORY

1. Amendment filed 5-24-74; effective thirtieth day thereafter (Register 74, No. 21).
2. Amendment filed 11-3-78; effective thirtieth day thereafter (Register 78, No. 44).
3. Repealer filed 1-25-85; effective thirtieth day thereafter (Register 85, No. 4).

## Article 5. Selection Procedures

### § 215. State Compliance.

Selection procedures must be in writing, approved by the apprenticeship program sponsor, and must meet objective standards.

Apprenticeship programs must comply with the State of California Plan for Equal Opportunity in Apprenticeship adopted by the California Apprenticeship Council on April 26, 1986 to be effective September 28, 1986, as though expressly set forth herein and shall be considered as an appendix hereto and appropriately marked as such, including the month and year of adoption.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071, 3075.1 and 3076, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 6-8-71; effective thirtieth day thereafter (Register 71, No. 24).
2. New subsection (d) filed 5-7-75; effective thirtieth day thereafter (Register 75, No. 19).
3. New subsection (e) filed 5-20-77; effective thirtieth day thereafter (Register 77, No. 21).
4. Amendment of subsection (a) filed 10-5-78; effective thirtieth day thereafter (Register 78, No. 40).
5. Amendment filed 9-27-82; effective thirtieth day thereafter (Register 82, No. 40).
6. Amendment filed 1-25-85; effective thirtieth day thereafter (Register 85, No. 4).
7. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 36).

### § 216. Review and Compliance.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071, 3073, 3076–3078, 3080–3084 and 3096, Labor Code.

HISTORY

1. Repealer filed 11–3–78; effective thirtieth day thereafter (Register 78, No. 44). For prior history, see Registers 73, No. 20; and 71, No. 33.
2. Renumbering from Section 217 to Section 216 and amendment of subsection (d) filed 11–3–78; effective thirtieth day thereafter (Register 78, No. 44).
3. Repealer filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

### § 217. Review and Compliance.

HISTORY

1. Amendment of subsection (b) filed 5–20–77; effective thirtieth day thereafter (Register 77, No. 21).
2. Renumbering from Section 217 to Section 216 filed 11–3–78; effective thirtieth day thereafter (Register 78, No. 44).

## Article 6. Apprenticeship Programs and Committees

### § 218. Apprenticeship Programs.

The administration and operation of apprenticeship programs shall be supervised by an apprenticeship program sponsor which shall approve apprentice agreements, adjust disputes and perform such other functions and duties as are agreed to in the apprenticeship standards. An apprenticeship program is not restricted to a local area of coverage and may provide for local, regional or statewide coverage in its standards. All actions and determinations regarding apprenticeship programs by apprenticeship program sponsors shall be made after giving reasonable notice and opportunity to be heard to all interested parties.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3073 and 3075–3080, Labor Code.

HISTORY

1. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

### § 219. Local Joint Apprenticeship Programs.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Section 3075, Labor Code.

HISTORY

1. Repealer filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).

### § 220. Local Unilateral Apprenticeship Programs.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Section 3079, Labor Code.

HISTORY

1. Repealer filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).

### § 221. Federations of Apprenticeship Committees.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 3090, Labor Code.

HISTORY

1. Amendment filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).
2. Repealer filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

### § 222. State and Regional Apprenticeship Advisory Committees.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 3073, Labor Code.

HISTORY

1. Amendment filed 8–9–71; effective thirtieth day thereafter (Register 71, No. 33).
2. Amendment filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).
3. Repealer filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

### § 223. State and Local Community Equal Opportunity Apprenticeship Committees.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071, 3073, 3075.1 and 3076, Labor Code.

HISTORY

1. Amendment filed 8–15–79; effective thirtieth day thereafter (Register 79, No. 33).
2. Repealer filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

## Article 7. State Certificates of Completion of Apprenticeship

### § 224. When Issued.

(a) A "Certificate of Completion of Apprenticeship" attesting to the completion of an apprenticeship will be issued under the authority of the California Apprenticeship Council by the Division of Apprenticeship Standards upon receipt of such competent evidence as may be required by the California Apprenticeship Council.

(b) The certificate shall signify completion of an apprenticeship under standards and apprentice agreement approved under the State Apprenticeship Law and these regulations.

(c) Completion of the entire apprenticeship program by the apprentice shall be attested to by the local apprenticeship program sponsor. The local apprenticeship program sponsor will attest to the related and supplemental instruction after consulting with the appropriate school authorities regarding the completion of the educational requirements of related and supplemental subjects.

(d) The certificate is in recognition of completion of an apprenticeship. The certificate may be granted to an apprentice only when the apprentice:

(1) in addition to previous on–the–job training and related school instruction which is of an approved nature, shall have completed not less than an additional six (6) months as an apprentice under the laws of the State of California; and

(2) demonstrated to the satisfaction of the apprenticeship program sponsor, mastery of the skills and knowledge of the prescribed program.

(e) The local apprenticeship program sponsor in recognition of unusual ability and progress in mastering the skills of the occupations and the related and supplemental education program may decrease the apprenticeship period for individual apprentices by not more than twelve and one–half (12 1/2) percent.

(f) Credit toward the apprenticeship for work experience prior to the apprenticeship may be given by the local apprenticeship program sponsor after verification and/or examination. Credit for partial completion of the education requirements for related and supplemental instruction may be given by the local apprenticeship program sponsor after consultation with the appropriate school authorities concerning the mastery of the related instruction ordinarily required of the apprentices.

(g) In instances where school classes are not available or where attendance will result in an undue hardship on the apprentice, the local apprenticeship program sponsor, after consultation with the appropriate school officials, may make arrangements for acceptance of educational experiences such as home study or correspondence courses as fulfilling the related and supplemental education requirement.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 3078, Labor Code.

HISTORY

1. Amendment of subsection (d) filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
2. Editorial correction of subsection (g) (Register 95, No. 41).

## Article 8. Local Joint Apprenticeship Committee Certificate of Authorization

HISTORY

1. Amendment of subsections (a), (a)(1), (a)(4), (a)(5), (a)(6) and (a)(8) filed 8–9–71; effective thirtieth day thereafter (Register 71, No. 33).

2. Repealer of Article 8 (Section 225) filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).

## Article 9. Certificates of Meritorious Service

### § 226. When Issued.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.5, Labor Code.

HISTORY

1. Repealer of Article 9 (Section 226) filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

## Article 10. Required Apprentices On Public Works Contract

### § 227. Scope and Application.

These regulations shall govern all actions pursuant to provisions of Division 2, Part 7, Chapter 1, Labor Code Sections 1777.5 and 1777.7.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Sections 1777.5, 1777.6 and 1777.7, Labor Code. *Hydrostorage, Inc.* v. *Northern California Boilermakers Local Joint Apprenticeship Committee*, (1989) 891 F.2d 719.

HISTORY

1. Repealer and new section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90. For prior history, see Register 82, No. 40.
2. Reinstatement of section as it existed prior to 4–9–90 emergency repeal and adoption filed 5–21–91 pursuant to Government Code section 11346.1(f) 120 days from effective date (Register 91, No. 47).
3. Repealer and new section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).
4. Editorial correction of Authority cite (Register 95, No. 21).

### § 228. Definitions.

For the purpose of this Article 10:

(a) ADMINISTRATOR means the Administrator of Apprenticeship or a duly authorized representative.

(b) CHIEF means the Chief of the Division of Apprenticeship Standards or a duly authorized representative.

(c) CONTRACTOR means a general, prime, specialty or subcontractor.

(d) COUNCIL means the California Apprenticeship Council.

(e) DAS means the Division of Apprenticeship Standards.

(f) DATE OF AGREEMENT OR CONTRACT AWARD means, whichever is earlier, the date the Public Work contract was signed by the party authorizing performance under the Public Work, or the date a Notice to Proceed was issued.

(g) WORKER means any journeyman as defined in Section 205(a) of Title 8 performing work of an apprenticeable occupation on a public works job, except a licensee who is a sole proprietor.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Sections 1777.5 and 1777.7, Labor Code.

HISTORY

1. New section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90. For history of former section 228, see Register 82, No. 40.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. New section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).
4. Amendment filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

### § 229. Service, Notice and Computation of Time.

(a) Except where otherwise provided for in these Regulations, all documents and notices required to be served pursuant to this Article shall be served personally, or by certified mail, or by first class mail on the party to be served or attorney or representative of Record.

(b) Service shall be prior to filing. Proof of service, by means of a written declaration under penalty of perjury stating the name(s) and address(es) of party(s) served and the date and manner of service, shall be attached to the papers filed.

(c) In computing the time within which a right may be exercised or an act is to be performed the first day shall be excluded and the last day shall be included. If the last day is a Saturday, Sunday or legal holiday, time shall be extended to the next weekday. For documents or notices served by first class main the time for performing any act shall be extended pursuant to the Code of Civil Procedure Section 1013.

(d) A request for review which is transmitted to the Administrator within 30 days after service of the order of debarment or civil penalty will be considered timely if the request was sent to the Administrator by first class mail or facsimile with a proof of service showing the date of service was within 30 days after service of the order of debarment or civil penalty.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. Repealer and new section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90. For prior history, see Register 82, No. 40.
2. Reinstatement of section as it existed prior to 4–9–90 emergency repeal and adoption filed 5–21–91 pursuant to Government Code section 11346.1(f) 120 days from effective date (Register 91, No. 47).
3. Repealer and new section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).
4. Amendment of section heading and new subsection (d) filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

### § 230. Notification of Contract Award Information.

(a) Contractors shall provide contract award information to the apprenticeship committee for each applicable apprenticeable craft or trade in the area of the site of the public works project that has approved the contractor to train apprentices. Contractors who are not already approved to train by an apprenticeship program sponsor shall provide contract award information to all of the applicable apprenticeship committees whose geographic area of operation includes the area of the public works project. This contract award information shall be in writing and may be a DAS Form 140, Public Works Contract Award Information. The information shall be provided to the applicable apprenticeship committee within ten (10) days of the date of the execution of the prime contract or subcontract, but in no event later than the first day in which the contractor has workers employed upon the public work. Failure to provide contract award information, which is known by the awarded contractor, shall be deemed to be a continuing violation for the duration of the contract, ending when a Notice of Completion is filed by the awarding body, for the purpose of determining the accrual of penalties under Labor Code Section 1777.7. The DAS Form 140 or written notice shall include the following information, but shall not require information not enumerated in Section 230:

(1) the contractor's name, address, telephone number and state license number;

(2) full name and address of the public work awarding body;

(3) the exact location of the public work site;

(4) date of the contract award;

(5) expected start date of the work;

(6) estimated journeyman hours;

(7) number of apprentices to be employed;

(8) approximate dates apprentices will be employed;

NOTE: Authority cited; Section 1777.7, Labor Code. Reference: Section 1777.5, Labor Code.

HISTORY

1. Repealer and new section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90. For prior history, see Register 82, No. 40.
2. Reinstatement of section as it existed prior to 4–9–90 emergency repeal and adoption filed 5–21–91 pursuant to Government Code section 11346.1(f) 120 days from effective date (Register 91, No. 47).
3. Repealer and new section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).

4. Amendment filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

## § 230.1. Employment of Apprentices on Public Works.

(a) Contractors, as defined in Section 228 to include general, prime, specialty or subcontractor, shall employ registered apprentice(s), as defined by Labor Code Section 3077, during the performance of a public work project in accordance with the required 1 hour of work performed by an apprentice for every five hours of labor performed by a journeyman, unless covered by one of the exemptions enumerated in Labor Code Section 1777.5 or this subchapter. Unless an exemption has been granted, the contractor shall employ apprentices for the number of hours computed above before the end of the contract. Contractors who are not already approved to train by an applicable joint apprenticeship committee or unilateral committee must request the dispatch of required apprentices from one of the applicable Apprenticeship Committees whose geographic area of operation includes the site of the public work by giving the committee actual notice of at least 48 hours (excluding Saturdays, Sundays and holidays) before the date on which one or more apprentices are required. However, if a non–signatory contractor declines to abide by and comply with the terms of a local committee's standards, the Apprenticeship Committee shall not be required to dispatch apprentices to such contractor. Conversely, if in response to a written request an Apprenticeship Committee does not dispatch any apprentice to a contractor who has agreed to employ and train apprentices in accordance with either the Apprenticeship Committee's Standards or these regulations within 72 hours of such request (excluding Saturdays, Sundays and holidays) the contractor shall not be considered in violation of this section as a result of failure to employ apprentices for the remainder of the project, provided that the contractor made the request in enough time to meet the above–stated ratio. If an Apprenticeship Committee dispatches fewer apprentices than the contractor requested, the contractor shall be considered in compliance if the contractor employs those apprentices who are dispatched, provided that, where there is more than one Apprenticeship Committee able and willing to unconditionally dispatch apprentices, a contractor who is not a participant in an apprenticeship program has requested dispatch from at least two committees.

(b) Apprentices employed on public works shall be paid the applicable apprentice prevailing per diem wage rate, available from DAS, and derived from the Director's survey of wages paid on public works in the geographic area of the craft or trade. DAS shall refer complaints alleging any contractor's failure to pay the proper apprentice prevailing wage rate on a public works project to the Division of Labor Standards Enforcement for investigation and appropriate action.

(c) Apprentices employed on public works can only be assigned to perform work of the craft or trade to which the apprentice is registered. Work of the craft or trade consists of job duties normally assigned to journeymen in the apprenticeable occupation. Where an employer employs apprentices under the rules and regulations of the California Apprenticeship Council, as set forth in Labor Code Section 1777.5(c)(2), apprentices employed on public works must at all times work with or under the direct supervision of journeyman/men. The on–the–job training shall be in accordance with the apprenticeship standards and apprenticeship agreement under which the apprentice is training, provided that a contractor shall not be subject to any financial or administrative obligations to a trust fund or employee benefit plan unless the contractor has so agreed.

(d) Contractors who have bid or have been awarded public works projects prior to January 1, 2000 and contractors who have bid prior to January 1, 2000 and have been awarded public works projects after January 1, 2000 shall comply with the provisions of Labor Code Section 1777.5 in effect prior to January 1, 2000, as implemented by California Apprenticeship Council regulations in effect prior to January 1, 2000.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.5, Labor Code.

HISTORY

1. New section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. New section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).
4. Amendment filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

## § 230.2. Payment of Apprenticeship Training Contributions to the Council.

(a) Contractors who are neither required nor wish to make apprenticeship training contributions to the applicable local training trust fund shall make their training contributions to the Council. Contractors may refer to the Director of the Department of Industrial Relations applicable prevailing wage determination for the amount owed for each hour of work performed by journeymen and apprentices in each apprenticeable occupation.

(b) Training contributions to the Council are due and payable on the 15th day of each month for work performed during the preceding month.

(c) Training contributions to the Council shall be paid by check and shall be accompanied by a completed CAC–2 Form, Training Fund Contributions, (Rev. 10/91), or the following information:

(1) The name, address, and telephone number of the contractor making the contribution.

(2) The contractor's license number.

(3) The name and address of the public agency that awarded the contract.

(4) The jobsite location, including the county where the work was performed.

(5) The contract or project number.

(6) The time period covered by the enclosed contributions.

(7) The contribution rate and total hours worked by apprenticeable occupation.

(8) The name of the program(s) that provided apprentices, if any.

(9) The number of apprentice hours worked, by apprenticeable occupation and by program.

(d) Training fund contribution paid to the CAC and deposited by the last day of a fiscal year into the Apprenticeship Training Contribution Fund shall be distributed in accordance with this subdivision within 90 days of the end of that fiscal year. Only apprenticeship programs that have had approval under Labor Code section 3075 for the entire fiscal year and are in existence at the time of the distribution of funds shall be entitled to receive a share of the distributed contributions. Contributions shall be distributed as follows: (i) payment shall first be made to the Division of Apprenticeship Standards for its budgeted expenses to administer this subdivision in the fiscal year in which the distribution is made; (ii) where there is only one applicable apprenticeship program in the same occupation for which contributions were made whose geographic area of operation as defined in 8 C.C.R. section 205(n) includes the county in which the work was performed, those contributions will be distributed to that program less the pro rata share of expenses paid by DAS; and (iii) where there are two or more applicable apprenticeship programs in the same occupation for which contributions were made whose geographic area of operation as defined in 8 C.C.R. section 205(n) includes the county in which the work was performed, those contributions will be distributed to each such program in proportion to the total number of registered apprentices that DAS has recorded in that program on June 30 of the fiscal year for which contributions were received less the pro rata share of expenses paid by DAS. "Pro rata share of expenses" means the share of DAS expenses that bears the same ratio to the contributions to be distributed as the total DAS expenses bear to the total contributions received in the fiscal year.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Sections 1770, 1773, 1773.1, 1777.5 and 1777.7, Labor Code.

HISTORY

1. New section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. New section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).
4. New subsections (c)(8)–(9) filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).
5. New subsection (d) and amendment of NOTE filed 4–6–2005; operative 5–6–2005 (Register 2005, No. 14).

## § 231. Complaints and Determinations of Noncompliance with Labor Code Section 1777.5.

(a) Complaints alleging noncompliance with Labor Code Section 1777.5 may be filed with the Chief by any person. Such complaints shall contain the following:

(1) The full name and address of the party filing the complaint.

(2) The full name and address of the party(s) against whom the complaint is made (hereinafter referred to as the "respondent").

(3) The name and address of the general contractor if the party against whom the complaint is filed is a subcontractor.

(4) The full name and address of the public work awarding body.

(5) The location (address or geographic location) of the public work site.

(6) A clear and concise statement of the facts constituting the basis for the complaint, date(s) of the alleged violation(s) and where appropriate, substantiation that respondent has: (A) failed to provide the applicable Apprenticeship Committee with notice of contract award information; and/or (B) failed to comply with the required apprentice to journeyman ratio; and/or (C) failed to properly employ apprentice(s) by assigning apprentice(s) to perform work outside the craft or trade of the apprenticeable occupation; and/or (D) failed to make required contributions to the Council or to the applicable apprenticeship program; and/or (E) failed to provide the applicable Apprenticeship Committee with a verified statement of the journeyman and apprentice hours performed on the contract; and/or (F) otherwise violated Labor Code Section 1777.5.

(7) The apprenticeable occupation.

(8) A declaration by the person signing the complaint under penalty of perjury that its contents are true and correct to the best of his/her knowledge and belief.

(9) The signature of the person filing the complaint, or in the case of an organization, an authorized officer or agent.

(10) Proof of Service of the complaint on the respondent, and in the case of a respondent subcontractor also on the general and/or prime contractor, pursuant to the provisions of Section 229.

(b) The Chief shall investigate complaints and provide written notice to the complaining party, if any, and the respondent of the determination. Whether or not there is a complaint, the Chief shall conduct an investigation before making a determination that a violation has occurred.

(c) The filing of a complaint is not a prerequisite to the initiation of an investigation by the Chief or to a determination by the Chief that a violation has occurred.

(d) Before issuing a determination that a violation has occurred, the Chief shall provide the affected contractor(s) with written notice of the allegations and a reasonable opportunity to respond.

(e) The Chief, on his/her own initiative, may issue a non–willful Notice when there is cause to believe that there has been a non–willful violation of Labor Code Section 1777.5. Such Notice shall be filed within six (6) months from the date of the alleged violation and shall contain the information required in subpart (b) of this section, but need not be under penalty of perjury. The Chief shall serve notice of a determination of a civil penalty or debarment on the affected contractor(s). The notice shall set forth the procedure set forth in Labor Code section 1777.7(c) for obtaining review of the Chief's decision. For purposes of commencing a period of debarment, the date of the determination of noncompliance by the Chief shall be the first date on which the Chief's decision is no longer subject to review.

(f) Nothing in this subchapter shall prevent the Chief from entering into a settlement with the affected contractor, either before or after a notice of a determination.

(g) If the Chief determines that a contractor has failed to submit contract award information and/or a verified statement of the journeyman and apprentice hours performed, the contractor shall use certified mail as the means of making subsequent submissions and maintain U.S. Postal Service return receipts as proof of mailing. The certified mail requirement shall end after two years from the notice of the determination.

(h) For purposes of Labor Code Section 1777.7, a contractor knowingly violates Labor Code Section 1777.5 if the contractor knew or should have known of the requirements of that Section and fails to comply, unless the failure to comply was due to circumstances beyond the contractor's control. There is an irrebuttable presumption that a contractor knew or should have known of the requirements of Section 1777.5 if the contractor had previously been found to have violated that Section, or the contract and/or bid documents notified the contractor of the obligation to comply with Labor Code provisions applicable to public works projects, or the contractor had previously employed apprentices on a public works project.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Sections 1770, 1773, 1777.5 and 1777.7, Labor Code.

HISTORY

1. New section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. New section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).
4. Amendment of section heading, section and NOTE filed 1–17–2002; operative 2–16–2002 (Register 2002, No. 3).

## § 231.1. Investigations of Alleged Willful Violations.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. New section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).
4. Change without regulatory effect repealing section filed 12–15–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 50).

## § 231.2. Proceedings Before Hearing on Alleged Willful Violations.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. New section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).
4. Change without regulatory effect repealing section filed 12–15–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 50).

## § 231.3. Proceedings After Issuance of a Citation.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. Editorial correction of Authority and Reference cites (Register 95, No. 21).

## § 231.4. Proceedings Before Hearing on Alleged Willful Violations.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. Editorial correction of Authority and Reference cites and HISTORY 2 (Register 95, No. 21).

### § 232. Hearings on Alleged Violations.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 4–9–90 as an emergency; operative 4–9–90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–7–90.
2. Repealed by operation of Government Code 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. New section filed 4–10–92; operative 5–11–92 (Register 92, No. 21).
4. Change without regulatory effect amending section heading, repealing subsections (b), (d) and (e) and relettering subsections filed 12–15–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 50).
5. Repealer filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

## Subarticle 1. General

### § 232.01. Scope and Application of Rules.

(a) These Rules govern proceedings for review of Determinations of civil penalty or debarment under Labor Code section 1777.5 and 1777.7. The provisions of Labor Code section 1777.7, applicable provisions of chapter 4.5 of title 2, division 3, part 1 (commencing at Government Code section 11425.10) of the Government Code and these Rules apply to all such Determinations served on a Contractor, Subcontractor, or Responsible Officer on or after the effective date of these Rules and provide the exclusive method for an Affected Contractor, Subcontractor, or Responsible Officer to obtain review of any such Determination.

(b) These Rules do not govern debarment proceedings under Labor Code section 1777.1, nor prevailing wage enforcement under Labor Code section 1742, nor any criminal prosecution.

(c) These Rules do not preclude any remedies otherwise authorized by law to remedy violations of Division 2, Part 7, Chapter 1 of the Labor Code. These Rules do preclude challenge by an Affected Contractor, Subcontractor, or Responsible Officer to determinations of violations of Labor Code section 1777.5 except as provided herein.

(d) For easier reference, individual sections within these prevailing wage hearing regulations are referred to as "Rules" using only their last two digits. For example, this Section 232.01 may be referred to as Rule 01.

[The next page is 8.2(e).]

NOTE: Authority cited: Section 11400.20, Government Code; and Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code; and Section 11400.10, Government Code.

HISTORY

1. New article 1 (sections 232.01–232.12) and section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).
2. Editorial correction redesignating article 1 as subarticle 1 (Register 2004, No. 33).

### § 232.02. Definitions.

For the purpose of these Rules:

(a) "Administrator" means the Administrator of Apprenticeship, who is the Director of the Department of Industrial Relations;

(b) "Affected Contractor, Subcontractor, or Responsible Officer" means a contractor or subcontractor (as defined under Labor Code section 1722.1) or Responsible Officer (as defined herein at subpart (p)) to whom the Chief DAS has issued a Determination of civil penalty or debarment pursuant to Labor Code section 1777.7. ;

(c) "Awarding Body" means an awarding body or body awarding the contract (as defined in Labor Code section 1722);

(d) "Chief DAS" means the Chief of the Division of Apprenticeship Standards, who may act through his or her designee or the Division of Apprenticeship Standards;

(e) "DAS" means the Division of Apprenticeship Standards;

(f) "Debarment" means the denial of the right to bid on or be awarded or to perform work as a contractor or subcontractor on any public works contract, that has been issued by the Chief DAS under Labor Code section 1777.7;

(g) "Department" means the Department of Industrial Relations;

(h) "Determination" means a civil penalty or debarment issued by the Chief DAS or his or her designee pursuant to Labor Code section 1777.7;

(i) "Director" means the Director of the Department of Industrial Relations;

(j) "Division" means the Division of Apprenticeship Standards;

(k) "Hearing Officer" means any person appointed by the Director pursuant to Labor Code section 1777.7 to conduct hearings and other proceedings under Labor Code section 1777.7 and these Rules;

(l) "Joint Labor–Management Committee" means a joint labor–management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (section 175a of Title 29 of the United States Code);.

(m) "Party" means an Affected Contractor, Subcontractor, or Responsible Officer , the Chief, DAS and any other Person who has intervened under subparts (a), (b), or (c) of Rule 08 (Section 232.08).

(n) "Person" means an individual, partnership, limited liability company, corporation, governmental subdivision or unit of a governmental subdivision, or public or private organization or entity of any character;

(o) "Representative" means a person authorized by a Party to represent that Party in a proceeding before a Hearing Officer;

(p) "Responsible Officer" means a person responsible for exercising supervision and control of a contractor's or subcontractor's operations as is necessary to secure compliance with the public works — including public works apprenticeship — obligations of a public works contractor or subcontractor set forth in Chapter 1 of Part 7 of Division 2 of the Labor Code, commencing with Section 1720.

(q) "Rule" refers to a section within sections 232.01–232.70 The Rule number corresponds to the last two digits of the full section number. (For example, Rule 08 is section 232.08.)

(r) "Settlement Officer" means a Hearing Officer as defined in subpart (k) who conducts a settlement meeting under the provisions of Rule 21 (Section 232.21).

(s) "Surety" means a surety (as defined in Civil Code section 2787) that issues a bond for the performance of a public works job, but only where the Surety assumed the contract for performance of the public works job by an Affected Contractor, Subcontractor, or Responsible Officer, and where the Surety operated the job when the violations of Labor Code section 1777.5 occurred.

(t) "Working Day" means any day that is not a Saturday, Sunday, or State holiday, as determined with reference to Code of Civil Procedure sections 12(a) and 12(b) and Government Code sections 6700 and 6701.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Sections 11405.40, 11405.60, 11405.70 and 11405.80, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.03. Computation of Time and Extensions of Time to Respond or Act.

(a) In computing the time within which a right may be exercised or an act is to be performed, the first day shall be excluded and the last day shall be included. If the last day is not a Working Day, the time shall be extended to the next Working Day.

(b) Unless otherwise indicated by proof of service, if the envelope was properly addressed, the mailing date shall be presumed to be: a postmark date imprinted on the envelope by the U.S. Postal Service if first–class postage was prepaid; or the date of delivery to a common carrier promising overnight delivery as shown on the carrier's receipt.

(c) Where service of any notice, decision, pleading or other document is by first class mail, and if within a given number of days after such service, a right may be exercised, or an act is to be performed, the time within which such right may be exercised or act performed is extended five days if the place of address is within the State of California, and 10 days if the place of address is outside the State of California but within the United States. However, this Rule shall not extend the time within which the Administrator may reconsider or modify a decision to correct an error (other than a clerical error) under Labor Code section 1777.7(c)(4).

(d) Where service of any notice, pleading, or other document is made by an authorized method other than first class mailing, extensions of time to respond or act shall be calculated in the same manner as provided under section 1013 of the Code of Civil Procedure, unless a different requirement has been specified by the appointed Hearing Officer or by another provision of these Rules.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.04. Appointment of Hearing Officers; Delegation of Appointment Authority to Chief Counsel.

(a) Upon receipt of a Request for Review of a Determination of civil penalty or debarment, the Administrator, acting through the Chief Counsel (*see* subpart (d) below), shall appoint an impartial Hearing Officer to conduct the review proceeding.

(b) The appointed Hearing Officer shall be an attorney employed by the Office of the Director — Legal Unit. However, if no attorney employed by the Office of the Director — Legal Unit is available or qualified to serve in a particular matter, the appointed Hearing Officer may be any attorney or administrative law judge employed by the Department, other than an employee of the Division of Apprenticeship Standards ("DAS") or a person who has represented or advised the DAS on matters covered by Ch. 1 of Part 7 of Div. 2 of the Labor Code, commencing with Section 1720 within one year of the appointment, or who at any time has represented or advised the Affected Contractor, Subcontractor, or Responsible Officer regarding alleged violations of Ch. 1 of Part 7 of Div. 2 of the Labor Code, commencing with Section 1720.

(c) Any person appointed to serve as a Hearing Officer in any matter shall possess at least the minimum qualifications for service as an administrative law judge pursuant to Government Code section 11502(b) and shall be someone who is not precluded from serving under Government Code section 11425.30.

(d) The Administrator's authority under Labor Code section 1777.7(c) to appoint an impartial Hearing Officer is delegated in all cases to the Chief Counsel of the Office of the Director, or to the Chief Counsel's designated Assistant or Acting Chief Counsel when the Chief Counsel is unavailable or disqualified from participating in a particular matter. This delegation includes all related authority under Rule 40 [Section 232.40]

below to appoint a different Hearing Officer to conduct all or any part of a review proceeding as well as the authority to consider and decide or to assign to another Hearing Officer for consideration and decision any motion to disqualify an appointed Hearing Officer.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Sections 11405.80, 11425.30 and 11425.40, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.05. Authority of Hearing Officers.

(a) In any proceeding assigned for hearing and decision under the provisions of Labor Code section 1777.7, the appointed Hearing Officer shall have full power, jurisdiction and authority to hold a hearing and ascertain facts for the information of the Administrator, to hold a prehearing conference, to issue a subpoena and subpoena duces tecum for the attendance of a Person and the production of testimony, books, documents, or other things, to compel the attendance of a Person residing anywhere in the state, to certify official acts, to regulate the course of a hearing, to grant a withdrawal, disposition or amendment, to order a continuance, to approve a stipulation voluntarily entered into by the Parties, to administer oaths and affirmations, to rule on objections, privileges, defenses, and the receipt of relevant and material evidence, to call and examine a Party or witness and introduce into the hearing record documentary or other evidence, to request a Party at any time to state the respective position or supporting theory concerning any fact or issue in the proceeding, to extend the submittal date of any proceeding, to exercise such other and additional authority as is delegated to Hearing Officers under these Rules or by an express written delegation by the Administrator, and to prepare a recommended decision, including a notice of findings, findings, and an order for approval by the Administrator.

(b) There shall be no right of appeal to or review by the Administrator of any decision, order, act, or refusal to act by an appointed Hearing Officer other than through the Administrator's review of the record in issuing or reconsidering a written decision under Rules 60 [Section 232.60] and 61 [Section 232.61] below.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Sections 11405.80, 11450.05, 11450.10, 11450.20 and 11450.30, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.06. Access to Hearing Records.

(a) Hearing case records shall be available for inspection and copying by the public to the same extent and subject to the same policies and procedures governing other records maintained by the Department. Hearing case records normally will be available for review in the office of the appointed Hearing Officer; provided however, that a case file may be temporarily unavailable when in use by the appointed Hearing Officer or by the Administrator or his or her designee.

(b) Nothing in this Rule shall authorize the disclosure of any record or exhibit that is required to be kept confidential or is otherwise exempt from disclosure by law or that has been ordered to be kept confidential by an appointed Hearing Officer.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 6253.4, Government Code. Reference: Section 1777.7, Labor Code; and Section 6253.4, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.07. Ex Parte Communications.

(a) Except as provided in this Rule, once a Request for Review is filed, and while the proceeding is pending, there shall be no direct or indirect communication regarding any issue in the proceeding to the appointed Hearing Officer or the Administrator, from the Chief DAS or any other Party or other interested Person, without notice and the opportunity for all Parties to participate in the communication.

(b) A communication made on the record in the hearing is permissible.

(c) A communication concerning a matter of procedure or practice is presumed to be permissible unless the topic of the communication appears to the Hearing Officer to be controversial in the context of the specific case. If so, the Hearing Officer shall so inform the other participant and may terminate the communication or continue it until after giving all Parties notice and an opportunity to participate. Any written communication concerning a matter of procedure or practice, and any written response, or a written memorandum identifying the participants and stating the substance of any such oral communication or response, shall be added to the case file so that all Parties have a reasonable opportunity to review it. Unless otherwise provided by statute or these Rules, the appointed Hearing Officer may determine a matter of procedure or practice based upon a permissible ex–parte communication. The term "matters of procedure or practice" shall be liberally construed.

(d) A communication from the Chief DAS to the Hearing Officer or the Administrator which is deemed permissible under Government Code section 11430.30 is permitted only if any such written communication and any written response, or a written memorandum identifying the participants and stating the substance of any such oral communication or response, is added to the case file so that all Parties have a reasonable opportunity to review it.

(e) If the Hearing Officer or the Administrator receives a communication in violation of this Rule, he or she shall comply with the requirements of Government Code section 11430.50.

(f) To the extent not inconsistent with Labor Code section 1777.7, the provisions of Article 7 of Chapter 4.5 of Title 2, Division 3, Part 1 (commencing with section 11430.10) of the Government Code governing ex parte communications in administrative adjudication proceedings shall apply to review proceedings conducted under these Rules.

(g) This Rule shall not be construed as prohibiting communications between the Administrator and the Chief DAS or between the Administrator and any other interested Person on issues or policies of general interest that coincide with issues involved in a pending review proceeding; *provided that* (1) the communication does not directly or indirectly seek to influence the outcome of any pending proceeding; (2) the communication does not directly or indirectly identify or otherwise refer to any pending proceeding; and (3) the communication does not occur at a time when the Director or the other party to the communication knows that a proceeding in which the other party to the communication is interested is under active consideration by the Administrator.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Sections 11430.10, 11430.20, 11430.30, 11430.40, 11430.50, 11430.60, 11430.70 and 11430.80, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.08. Intervention and Participation by other Interested Persons.

(a) A bonding company and any Surety on a bond that secures the performance of the job covered by the Determination shall be permitted to intervene as a matter of right in any pending review filed by the Affected Contractor, Subcontractor, or Responsible Officer from the Determination in question; provided that, intervention is sought at or before the first prehearing conference held pursuant to Rule 31 [Section 232.31] below and within either 15 days after the bonding company or Surety was served with a copy of the Determination, or 15 days after the filing of the request for review, whichever is later. Thereafter, any request to intervene by such a bonding company or Surety shall be treated as a motion for permissive participation under subpart (c) of this Rule. A bonding company or Surety shall have the burden of proof with respect to any claim that it did not receive notice of the Determination until after the filing of the Request for Review.

(b) The employee(s), labor union, or Joint Labor–Management Committee, or apprenticeship program (joint or unilateral) who filed the formal complaint which led the Chief DAS to issue the Determination of civil penalty or debarment shall be permitted to intervene in a pending review filed by the Affected Contractor, Subcontractor, or Responsible

Officer from the Determination of civil penalty or debarment in question; provided that, intervention is sought at or before the first prehearing conference held pursuant to Rule 31 [Section 232.31] below and there is no good cause to deny the request. Thereafter, any request to intervene by such employee(s), labor union, or Joint Labor–Management Committee or apprenticeship program shall be treated as a motion for permissive participation as an interested Person under subpart (d) of this Rule.

(c) Any other Person may move to participate as an interested Person in a proceeding in which that Person claims a substantial interest in the issues or underlying controversy and in which that Person's participation is likely to assist and not hinder or protract the hearing and determination of the case by the Hearing Officer and the Administrator. Interested Persons who are permitted to participate under this Rule shall *not* be regarded as Parties to the proceeding for any purpose, but may be provided notices and the opportunity to present arguments under such terms as the Hearing Officer deems appropriate.

(d) Rights to intervene or participate as an interested Person are only in accordance with this Rule. Intervention or permissive participation under this Rule shall not expand the scope of issues under review nor shall it extend any rights or interests which have been forfeited as a result of an Affected Contractor, Subcontractor, or Responsible Officer's own failure to file a timely Request for Review. The Hearing Officer may impose conditions on an intervenor's or other interested Person's participation in the proceeding, including but not limited to those conditions specified in Government Code §11440.50(c).

(e) No Person shall be required to seek intervention in a review proceeding as a condition for pursuing any other remedy available to that Person for the enforcement of the public works apprenticeship requirements of section 1777.5 of the Labor Code.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.09. Representation at Hearing.

(a) A Party may appear in person or through an authorized Representative, who need not be an attorney at law; however, a Party shall use the Director's Authorization For Representation By Non–Attorney form, revised 1/15/02, to authorize representation by any non–attorney who is not an owner, officer, or managing agent of that Party.

(b) Upon formal notification that a Party is being represented by a particular individual or firm, service of subsequent notices in the matter shall be made on the Representative, either in addition to or instead of the Party, unless and until such authorization is terminated or withdrawn by further written notice. Service upon an authorized Representative shall be effective for all purposes and shall control the determination of any notice period or the running of any time limit for the performance of any acts, regardless of whether or when such notice may also have been served directly on the represented Party.

(c) An authorized Representative shall be deemed to control all matters respecting the interests of the represented Party in the proceedings.

(d) Parties and their Representatives shall have a continuing duty to keep the appointed Hearing Officer and all other Parties to the proceeding informed of their current address and telephone number.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.10. Proper Method of Service.

(a) Unless a particular method of service is specifically prescribed by statute or these Rules, service may be made by: (1) personal delivery; (2) priority or first class mailing postage prepaid through the U. S. Postal Service; (3) any other means authorized under Code of Civil Procedure section 1013; or (4) pursuant to Government Code section 11440.20(b), by facsimile or other electronic means.

(b) Service is complete at the time of personal delivery or mailing, or at the time of transmission as determined under Rule 11 [Section 232.11] below.

(c) Proof of service shall be filed with the document and may be made by: (1) affidavit or declaration of service; (2) written statement endorsed upon the document served and signed by the party making the statement; or (3) copy of letter of transmittal.

(d) Service on a Party who has appeared through an attorney or other Representative shall be made upon such attorney or Representative.

(e) In each proceeding, the Hearing Officer shall maintain an official address record which shall contain the names and addresses of all Parties and their Representatives, agents, or attorneys of record. Any change or substitution in such information must be communicated promptly in writing to the Hearing Officer. The official address record may also include the names and addresses of interested Persons who have been permitted to participate under Rule 08(d) [Section 232.08].

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Section 11440.20, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.11. Filing and Service of Documents by Facsimile or Other Electronic Means.

(a) In individual cases the Hearing Officer pursuant to Government Code section 11440.20(b) may authorize the filing and service of documents by facsimile or by other electronic means, subject to reasonable restrictions on the time of transmission and the page length of any document or group of documents that may be transmitted by facsimile or other electronic means, and subject to any further requirements on the use of cover sheets or the subsequent filing and service of originals or hard copies of documents as the Hearing Officer deems appropriate. Filing and service by facsimile or other electronic means shall not be authorized under terms that substantially disadvantage any Party appearing or participating in the proceeding as a matter of right. A document transmitted by facsimile or other electronic means shall not be considered received until the next Working Day following transmission unless it is transmitted on a Working Day and the entire transmission is completed by no later than 4:00 p.m. Pacific Time.

(b) Filings and service by facsimile or other electronic means shall not be authorized or accepted as a substitute for another method of service that is required by statute or these Rules, unless the Party served has expressly waived its right to be served in the required manner.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Section 11440.20, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.12. Administrative Adjudication Bill of Rights.

(a) The provisions of the Administrative Adjudication Bill of Rights found in Article 6 of Chapter 4.5 of Title 2, Division 3, Part 1 (commencing with section 11425.10) of the Government Code shall apply to these review proceedings to the extent not inconsistent with a state or federal statute, a federal regulation, or a court decision which applies specifically to the Department. The enumeration of certain rights in these Rules may expand but shall not be construed as limiting the same or similar provision of the Administrative Adjudication Bill of Rights; nor shall the enumeration of certain rights in these Rules be construed as negating other statutory rights not stated.

(b) Ex parte communications between the appointed Hearing Officer and the Administrator shall be in accordance with Government Code section 11430.80(b).

(c) The presentation or submission of any written communication by a Party or other interested Person during the course of a review proceeding shall be governed by the requirements of Government Code §11440.60 (b) and (c).

(d) Unless otherwise indicated by express reference within the body of one of these Rules, the provisions of Chapter 5 of Title 2, Division 3, Part 1 (commencing with section 11500) of the Government Code shall not apply to these review proceedings.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Sections 11415.20, 11425.10 and 11430.80(b), Government Code.

HISTORY

1. New section filed 7-29-2004; operative 8-28-2004 (Register 2004, No. 31).

## Subarticle 2. Determinations and Request for Review

### § 232.20. Service and Contents of Determinations.

(a) A Determination of civil penalty or debarment shall be served on the contractor, subcontractor, and responsible officer, if applicable, by first class and certified mail pursuant to the requirements of Code of Civil Procedure section 1013. A copy of the notice shall also be served by certified mail on any bonding company issuing a bond that secures the performance of the job covered by the Determination and to any Surety on the bond if its identities of such companies are known or reasonably ascertainable. The identity of any Surety issuing a bond for the benefit of an Awarding body as designated obligee shall be deemed "known or reasonably ascertainable," and the Surety shall be deemed to have received the notice required under this subpart if sent to the address appearing on the face of the bond.

(b) A Determination of civil penalty or debarment shall be in writing and shall include the following information:

(1) a description of the nature of the violation and basis for the Determination; and

(2) the amount of penalties due, including a specification of amounts to be withheld from available contract payments, and any period of debarment.

(c) A Determination of civil penalty or debarment shall also include the following information:

(1) the name and address of the office of the Administrator to whom a Request for Review must be sent, as well as the name and address of the office of the Chief DAS on whom a copy of the Request for Review must be served;

(2) information on the procedures for obtaining review of the Determination;

(3) notice of the opportunity to request a settlement meeting under Rule 21 [Section 232.21] below; and

(4) the following statement which shall appear in bold or another type face that makes it stand out from the other text:

**Failure by a contractor, subcontractor, or responsible officer to submit a timely Request for Review will result in a final order which shall be binding on the contractor, subcontractor, or responsible officer. Labor Code section 1777.7(c)(1).**

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Sections 11440.20 and 11425.50, Government Code.

HISTORY

1. New article 2 (sections 232.20–232.29) and section filed 7-29-2004; operative 8-28-2004 (Register 2004, No. 31).
2. Editorial correction redesignating article 2 as subarticle 2 (Register 2004, No. 33).

### § 232.21. Opportunity for Early Settlement.

(a) Any Party may request a meeting with the Chief DAS for the purpose of attempting to settle the dispute regarding the Determination.

(b) A settlement meeting may be conducted subject only to the agreement of the Parties, including agreement to any particular Hearing Officer to act as the Settlement Officer, and agreement to waive any right to disqualify the Office of the Director — Legal Unit from representing the Director or any division of the Department other than DAS in the event any part of the dispute goes to court. The settlement meeting may be held in person or by telephone.

(c) Nothing herein shall preclude the Parties from meeting or attempting to settle a dispute at any time.

(d) Neither the making or pendency of a request for a settlement meeting, nor the fact that the Parties have met or have failed or refused to meet as authorized by this Rule shall serve to extend the time for filing a Request for Review under Rule 22 [Section 232.22] below.

(e) No evidence of anything said or any admission made for the purpose of, in the course of, or pursuant to, such a settlement meeting shall be admissible or subject to discovery in any administrative or civil proceeding. No writing prepared for the purpose of, in the course of, or pursuant to, such a settlement meeting, other than a final settlement agreement, shall be admissible or subject to discovery in any administrative or civil proceeding. Where a separate Settlement Officer has conducted the settlement meeting, all communications by and between the parties and the Settlement Officer are completely confidential, and not to be shared by the parties or by the Settlement Officer with the Hearing Officer, other attorneys working in the Office of the Director — Legal Unit, or clients of the Office of the Director — Legal Unit.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Section 11415.60, Government Code.

HISTORY

1. New section filed 7-29-2004; operative 8-28-2004 (Register 2004, No. 31).

### § 232.22. Filing of Request for Review.

(a) Any Request for Review of a Determination of civil penalty or debarment shall be transmitted in writing to the office of the Administrator within 30 days after service of the Determination. Failure to request review within 30 days shall result in the Determination becoming final and not subject to further review under these Rules.

(b) A Request for Review shall be transmitted to the office of the Administrator at the following address:

DEPARTMENT OF INDUSTRIAL RELATIONS
OFFICE OF THE DIRECTOR — LEGAL UNIT
ATTENTION: LEAD HEARING OFFICER
P.O. BOX 420603
SAN FRANCISCO, CA 94142-0603

(c) A Request for Review shall be deemed filed on the date of mailing, as determined by the U.S. Postal Service postmark date on the envelope or the overnight carrier's receipt in accordance with Rule 03(b) [Section 232.03(b)] above, or on the date of receipt by the designated office of the Administrator, whichever is earlier.

(d) A copy of the Request for Review must be served on the Chief DAS, at the address as designated on the Determination from which review is sought.

(e) A Request for Review either shall clearly identify the Determination from which review is sought, including the date of the Determination, or it shall include a copy of the Determination as an attachment. A Request for Review shall also set forth the basis upon which the Determination is being contested. A Request for Review shall be liberally construed in favor of its sufficiency; however, the Hearing Officer may require the Party seeking review to provide a further specification of the issues or claims being contested and a specification of the basis for contesting those matters.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7-29-2004; operative 8-28-2004 (Register 2004, No. 31).

### § 232.23. Transmittal of Request for Review to Department.

Within ten (10) days followings its receipt of a Request for Review, the Chief DAS shall transmit to the Office of the Director — Legal Unit, the Request for Review and copies of the Determination of civil penalty or debarment at the following address.

DEPARTMENT OF INDUSTRIAL RELATIONS
OFFICE OF THE DIRECTOR — LEGAL UNIT
ATTENTION: LEAD HEARING OFFICER
P.O. BOX 420603
SAN FRANCISCO, CA 94142-0603

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7-29-2004; operative 8-28-2004 (Register 2004, No. 31).

### § 232.24. Disclosure of Evidence.

(a) Within ten (10) days following its receipt of a Request for Review, the Chief DAS shall also notify the Affected Contractor, Subcontractor, or Responsible Officer, if applicable, of its opportunity and the procedures for reviewing evidence to be utilized by the Chief DAS at the hearing on the Request for Review.

(b) The Chief DAS shall be deemed to have provided the opportunity to review evidence required by this Rule if it (1) gives the Affected Contractor, Subcontractor, or Responsible Officer the option, at the Affected Contractor's, Subcontractor's, or Responsible Officer's own expense, to either (A) obtain copies of all such evidence through a commercial copying service or (B) inspect and copy such evidence at the office of the Chief DAS during normal business hours; or if (2) the Chief DAS at its own expense forwards copies of all such evidence to the Affected Contractor, Subcontractor, or Responsible Officer.

(c) The evidence required to be provided under this Rule shall include the identity of witnesses whose testimony the Chief DAS intends to present, either in person at the hearing or by declaration or affidavit. This provision shall not be construed as requiring the Chief DAS to prepare or provide any separate listing of witnesses whose identities are disclosed within the written materials made available under subpart (a).

(d) The Chief DAS shall make evidence available for review as specified in subparts (a) through (c) within 20 days of its receipt of the Request for Review; provided that, this deadline may be extended by written request or agreement of the Affected Contractor, Subcontractor, or Responsible Officer. The Chief DAS's failure to make evidence available for review as required by Labor Code section 1777.7(c) and this Rule, shall preclude the Chief DAS from introducing such evidence in proceedings before the Hearing Officer or the Administrator.

(e) This Rule shall not preclude the Chief DAS from relying upon or presenting any evidence first obtained after the initial disclosure of evidence under subparts (a) through (d), provided that, such evidence is promptly disclosed to the Affected Contractor, Subcontractor, or Responsible Officer. This Rule also shall not preclude the Chief DAS from presenting previously undisclosed evidence to rebut new or collateral claims raised by another Party in the proceeding.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7-29-2004; operative 8-28-2004 (Register 2004, No. 31).

### § 232.25. Withdrawal of Request for Review; Reinstatement.

(a) An Affected Contractor, Subcontractor, or Responsible Officer may withdraw a Request for Review by written notification at any time before a decision is issued or by oral motion on the hearing record. The Hearing Officer may grant such withdrawal by letter, order or decision served on the Parties.

(b) For good cause, a Request for Review so dismissed may be reinstated by the Hearing Officer or the Administrator upon a showing that the withdrawal resulted from misinformation given by the Chief DAS or otherwise from fraud or coercion. A motion for reinstatement must be filed within 60 days of service of the letter, order or decision granting withdrawal of the Request for Review or, in the event of fraud which could not have been suspected or discovered with the exercise of reasonable diligence, within 60 days of discovery of such fraud. The motion shall be accompanied by a declaration containing a statement that any facts therein are based upon the personal knowledge of the declarant.

(c) Notwithstanding any application or showing made under subpart (b) of this Rule, neither the Hearing Officer nor the Administrator may reinstate any Request for Review where the underlying Determination has become final and entered as a court judgment.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7-29-2004; operative 8-28-2004 (Register 2004, No. 31).

### § 232.26. Dismissal or Amendment of Determinations.

(a) Upon motion to the appointed Hearing Officer, the Chief DAS may dismiss or amend a Determination as follows:

(1) A Determination may be dismissed or amended to eliminate or reduce a charge of violation from serious and knowing to knowing, an amount of monetary penalty, or a period of debarment that is not warranted under the facts and circumstances of the case, or that has been satisfied, or to conform to an order of the Hearing Officer or the Administrator.

(2) For good cause, a Determination may be amended to revise or increase a charge from knowing to serious and knowing, an amount of monetary penalty, or a period of debarment based upon a recomputation or the discovery of new evidence subsequent to the issuance of the original Assessment or Notice.

(b) The Hearing Officer shall grant any motion to dismiss or amend a Determination downward under subparts (a)(1) absent a showing that such dismissal or amendment will result in the forfeiture of substantial substantive rights of another Party to the proceeding. The Hearing Officer may grant a motion to amend a Determination upward under subpart (a)(2) under such terms as are just, including where appropriate the extension of an additional opportunity for early settlement under Rule 21 [Section 232.21]. Unless the Hearing Officer determines otherwise, an amended Determination shall be deemed fully controverted without need for filing an additional or amended Request for Review.

(c) The Administrator may, upon the record on review of the Determination and without amendment, increase or decrease the penalty — whether civil penalty or debarment — based upon consideration of the factors listed in Labor Code section 1777.7(f).

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7-29-2004; operative 8-28-2004 (Register 2004, No. 31).

### § 232.27. Early Disposition of Untimely Assessment, Withholding, or Request for Review.

(a) Upon the application of any Party or upon his or her own motion, the appointed Hearing Officer may issue an Order to Show Cause why a Determination or a Request for Review should not be dismissed as untimely under the relevant statute.

(b) An Order to Show Cause issued under subpart (a) of this Rule shall be served on all Parties who have appeared or been served with any prior notice in the matter and shall provide the Parties with at least 10 days to respond in writing to the Order to Show Cause and an additional 5 days following the service of such responses to reply to any submission by any other Party. Evidence submitted in support or opposition to an Order to Show Cause shall be by affidavit or declaration under penalty of perjury. There shall be no oral hearing on an Order to Show Cause issued under this Rule unless requested by a Party or by the Hearing Officer.

(c) After the time for submitting responses and replies to the Order to Show Cause has passed or after the oral hearing, if any, the Hearing Officer may do one of the following: (1) recommend that the Administrator issue a decision setting aside the Determination or dismissing the Request for Review as untimely under the statute; (2) find the Determination or Request for Review timely and direct that the matter proceed to hearing on the merits; or (3) reserve the timeliness issue for further consideration and determination in connection with the hearing on the merits.

(d) A decision by the Administrator which sets aside a Determination or which dismisses a Request for Review as untimely shall be subject to

reconsideration and to judicial review in the same manner as any other Final Order or Decision of the Administrator. A determination by the Hearing Officer that the Determination or Request for Review was timely or that the timeliness issue should be reserved for further consideration and determination in connection with the hearing on the merits shall *not* be subject to appeal or review except as part of any reconsideration or appeal from the Decision of the Administrator made after the hearing on the merits.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Section 11440.20, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.28. Finality of Determinations When No Timely Request for Review is Filed; Authority of Awarding Body to Disburse Withheld Funds.

(a) Upon the failure of an Affected Contractor, Subcontractor or Responsible Officer to file a timely Request for Review under Labor Code section 1777.7(c) and Rule 22 [Section 232.22] above, the Determination of civil penalty or debarment shall become a "final order" as to the Affected Contractor, Subcontractor, or Responsible Officer that the Chief DAS may certify and file with the superior court in accordance with Labor Code section 1777.7(c)(6).

(b) Where a Determination of civil penalty or debarment has become final as to at least one but not as to every Affected Contractor, Subcontractor, or Responsible Officer, the Awarding Body shall continue to withhold and retain the amounts required to satisfy any penalties at stake in a review proceeding initiated by any other Affected Contractor, Subcontractor, or Responsible Officer until there is a final order in that proceeding that is no longer subject to judicial review.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.29. [Reserved].

## Subarticle 3. Prehearing Procedures

### § 232.30. Scheduling of Hearing; Continuances and Tolling.

(a) The appointed Hearing Officer shall establish the place and time of the hearing on the merits, giving due consideration to the needs of all Parties and the statutory time limits for hearing and deciding the matter. Parties are encouraged to communicate scheduling needs to the Hearing Officer and all other Parties at the earliest opportunity. It shall not be a violation of Rule 07 [Section 232.07]'s prohibition on ex parte communications for the Hearing Officer or his or her designee to communicate with Parties individually for purposes of clearing dates and times and proposing locations for the hearing. The Hearing Officer may also conduct a prehearing conference by telephone or any other expeditious means for purposes of establishing the time and place of the hearing.

(b) Once a hearing date is set, a request for a continuance that is not joined in by all other Parties or that is for more than 30 days will not be granted absent a showing of extraordinary circumstances, giving due regard to the potential prejudice to other Parties in the case and other Persons affected by the matter under review. Absent an enforceable waiver (*see* subpart (d) below), no continuance will be granted nor any proceeding otherwise delayed if doing so is likely to prevent the Hearing Officer from commencing the hearing on the matter within the statutory time limit.

(c) A request for a continuance that is for 30 days or less and is joined by all Parties shall be granted upon a showing of good cause. Notwithstanding subpart (b) above, a unilateral request for a continuance made by the Party who filed the Request for Review shall be granted upon a showing of good cause if the new date for commencing the hearing is no more than 120 days after the date of service of the Determination of civil penalty or debarment

(d) If a Party makes or joins in any request that would delay or otherwise extend the time for hearing or deciding a review proceeding beyond any prescribed time limit, such request shall also be deemed a waiver by that Party of that time limit.

(e) The time limits for hearing and deciding a review proceeding shall also be deemed tolled (1) when proceedings are suspended to seek judicial enforcement of a subpoena or other order to compel the attendance, testimony, or production of evidence by a necessary witness; (2) when the proceedings are stayed or enjoined by any court order; (3) between the time that a proceeding is dismissed and then ordered reinstated under Rule 25 [Section 232.25] above; (4) upon the order of a court reinstating or requiring rehearing of the merits of a proceeding; or (5) during the pendency of any other cause beyond the Administrator's direct control (including but not limited to natural disasters, temporary unavailability of a suitable hearing facility, or absence of budget authority) that prevents the Administrator or any appointed Hearing Officer from carrying out his or her responsibilities under these Rules.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New article 3 (sections 232.30–232.37) and section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).
2. Editorial correction redesignating article 3 as subarticle 3 (Register 2004, No. 33).

### § 232.31. Prehearing Conference.

(a) Upon the application of any Party or upon his or her own motion, the appointed Hearing Officer may conduct a prehearing conference for any purpose that may expedite or assist the preparation of the matter for hearing or the disposition of the Request for Review. The prehearing conference may be conducted by telephone or other means that is convenient to the Hearing Officer and the Parties.

(b) The Hearing Officer shall provide reasonable advance notice of any prehearing conference conducted pursuant to this Rule. The Notice shall advise the Parties of the matters which the Hearing Officer intends to cover in the prehearing conference, but the failure of the Notice to enumerate some matter shall not preclude its discussion or consideration at the conference. The Notice shall advise the Parties that failure to appear at the prehearing conference may subject the Parties to default, pursuant to Rule 46 [Section 232.46].

(c) With or without a prehearing conference, the Hearing Officer may issue such procedural Orders as are appropriate for the submission of evidence or briefs and conduct of the hearing, consistent with the substantial rights of the affected Parties.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.32. Consolidation and Severance.

(a) The Hearing Officer may consolidate for hearing and decision any number of proceedings where the facts and circumstances are similar and consolidation will result in conservation of time and expense. Where the Hearing Officer proposes to consolidate proceedings on his or her own motion, the Parties shall be given reasonable notice and an opportunity to object before consolidation is ordered.

(b) The Hearing Officer may sever consolidated proceedings for good cause.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.33. Prehearing Motions; Cut Off Date.

(a) Any motion made in advance of the hearing on the merits, any opposition thereto, and any further reply shall be in writing and directed to the appointed Hearing Officer. No particular format shall be required; however, the following information shall appear prominently on the first

page: (1) the case name (*i.e.*, names of the Parties); (2) any assigned case number; (3) the name of the Hearing Officer to whom the paper is being submitted; (4) the identity of the Party submitting the paper; (5) the nature of the relief sought; and (6) the scheduled date, if any, for the hearing on the merits of the Request for Review. The motion shall also include a Proof of Service, as defined in Rule 10 [Section 232.10] above, showing that copies have been served on all other Parties to the proceeding.

(b) Prehearing motions shall be served and filed no later than 20 days prior to the hearing on the merits of the Request for Review. Any opposition shall be served and filed no later than 10 days after service of the motion or at least 7 days prior to the hearing on the merits, whichever is earlier. The Hearing Officer may in his or her discretion decide the motion in writing in advance of the hearing on the merits or reserve the matter for further consideration and determination at the hearing on the merits.

(c) There shall be no right to a separate oral hearing on any prehearing motion, except in those instances in which an oral hearing has been specially requested by a Party or the Hearing Officer *and* in which the enforcement or forfeiture of a fundamental right is at stake. When the Hearing Officer determines that such an oral hearing is necessary or appropriate, it may be conducted by telephone or other manner that is convenient to the Parties.

(d) With the exception of timeliness challenges under Rule 27 [Section 232.27], prehearing motions which seek to dispose of a Request for Review or any related claim or defense are disfavored and ordinarily will not be considered prior to the hearing on the merits.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.34. Evidence by Affidavit or Declaration.

(a) At any time 20 or more days prior to commencement of a hearing, a Party may serve upon all other Parties a copy of any affidavit or declaration which the proponent proposes to introduce in evidence, together with a notice as provided in subpart (b). Unless another Party, within 10 days after service of such notice, delivers to the proponent a request to cross–examine the affiant or declarant, the right to cross–examine such affiant or declarant is waived and the affidavit or declaration, if introduced in evidence, shall be given the same effect as if the affiant or declarant had testified in person. If an opportunity to cross–examine an affiant or declarant is not afforded after request therefor is made as herein provided, the affidavit or declaration may be introduced in evidence, but shall be given only the same effect as other hearsay evidence.

(b) The notice referred to in subpart (a) shall be substantially in the following form with the appropriate information inserted in the places enclosed by brackets:

"The accompanying affidavit or declaration of [name of affiant or declarant] will be introduced as evidence at the hearing in [title and other information identifying the proceeding]. [Name of affiant or declarant] will not be called to testify orally, and you will not be entitled to question the affiant or declarant unless you notify [name of the proponent, Representative, agent or attorney] at [address] that you wish to cross–examine the affiant or declarant. Your request must be mailed or delivered to [name of proponent, Representative, agent or attorney] on or before [specify date at *least* 10 days after anticipated date of service of this notice on the other Parties]."

(c) If a timely request is made to cross–examine an affiant or declarant under this Rule, the burden of producing that witness at the hearing shall be upon the proponent of the witness. If the proponent fails to produce the witness, the affidavit or declaration may be introduced in evidence, but shall be given only the same effect as other hearsay evidence under Rule 232.44.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.35. Subpoena and Subpoena Duces Tecum.

(a) Subpoenas and subpoenas duces tecum may be issued for attendance at a hearing and for the production of documents at any reasonable time and place or at a hearing.

(b) Subpoenas and subpoenas duces tecum shall be issued by the Hearing Officer at the request of a Party, or by the attorney of record for a Party, in accordance with sections 1985 to 1985.6, inclusive, of the Code of Civil Procedure. The burden of serving a subpoena that has been issued by the Hearing Officer shall be upon the Party who requested the subpoena.

(c) Service of subpoenas and subpoenas duces tecum, objections thereto, and mileage and witness fees shall be governed by the provisions of Government Code sections 11450.20 through 11450.40.

(d) Subpoenas and subpoenas duces tecum shall be enforceable through the Contempt and Monetary Sanctions provision set forth in Rule 47 [Section 232.47] below. A Party aggrieved by the failure or refusal of any witness to obey a subpoena or subpoena duces tecum shall have the burden of showing to the satisfaction of the Hearing Officer that the subpoena or subpoena duces tecum was properly issued and served and that the testimony or evidence sought was necessary to prove or disprove a significant claim or defense in the proceeding.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Section 11450.05, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.36. Written Notice to Party in Lieu of Subpoena.

(a) In the case of the production of a Party of record in the proceeding or of a Person for whose benefit a proceeding is prosecuted or defended, the service of a subpoena upon any such witness is not required if written notice requesting the witness to attend, with the time and place of the hearing, is served on the attorney of the Party or Person. For purposes of this Rule, a Party of record in the proceeding or Person for whose benefit a proceeding is prosecuted or defended includes an officer, director, or managing agent of any such Party or Person.

(b) Service of written notice to attend under this Rule shall be made in the same manner and subject to the same conditions provided in section 1987 of the Code of Civil Procedure for service of written notice to attend in a civil action or proceeding.

(c) The Hearing Officer shall have authority under Rule 47 [Section 232.47] below to sanction a Party who fails or refuses to comply with a written notice to attend that meets the requirements of this Rule and has been timely served in accordance with section 1987 of the Code of Civil Procedure. However, the Hearing Officer may not initiate contempt proceedings against the witness for failing to appear based solely on non–compliance with a written notice to attend served on the Party's attorney. A Party seeking sanctions for another Party's failure or refusal to comply with a written notice to attend shall have the burden of showing to the satisfaction of the Hearing Officer that the written notice to attend was properly issued and timely served and that the testimony or evidence sought was necessary to prove or disprove a significant claim or defense in the proceeding.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Sections 11450.50, 11455.10, 11455.20 and 11455.30, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.37. Depositions and Other Discovery.

(a) There shall be no right to take oral depositions or obtain any other form of discovery that is not expressly authorized under these Rules.

(b) Oral depositions may be conducted only by stipulation of all Parties to the proceedings or by order of the appointed Hearing Officer upon a showing of substantial good cause. Oral depositions will be permitted only for purposes of obtaining the testimony of witnesses who are likely to be unavailable to testify at the hearing.

(c) Nothing in this Rule shall preclude the use of deposition testimony or other evidence obtained in separate proceedings, if such evidence is otherwise relevant and admissible.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Section 11450.30, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

## Subarticle 4. Hearings

### § 232.40. Notice of Appointment of Hearing Officer; Objections.

(a) Notice of the Appointment of a Hearing Officer under Rule 04 [Section 232.04] above shall be provided to the Parties as soon as practicable and no later than when the matter is noticed for a prehearing conference or hearing.

(b) The Administrator or Chief Counsel under Rule 04 [Section 232.04] may appoint a different Hearing Officer to conduct and hear the review or to conduct and dispose of any preliminary or procedural matter in a given case.

(c) A Party wishing to object to the appointment of a particular Hearing Officer, including for any one or more of the grounds specified in sections 11425.30 and 11425.40 of the Government Code or section 1777.7 of the Labor Code, shall within 10 days after receiving notice of the appointment and no later than the start of any hearing on the merits, whichever is earlier, file a motion to disqualify the appointed Hearing Officer together with a supporting affidavit or declaration. The motion shall be filed with the Chief Counsel of the Office of the Director at the address indicated in Rule 23 [Section 232.23] above. Notwithstanding the foregoing time limits, if a Party subsequently discovers facts constituting grounds for the disqualification of the Hearing Officer, including but not limited to that the Hearing Officer has received a prohibited ex parte communication in the pending case, the motion shall be filed as soon as practicable after the facts constituting grounds for disqualification are discovered.

(d) Upon receipt of a motion to disqualify the Hearing Officer, the Administrator may: (1) consider and decide the motion or appoint another Hearing Officer to consider and decide the motion, in which case the challenged Hearing Officer shall first be given an opportunity to respond to the motion, but no proceedings shall be conducted by the challenged Hearing Officer until the motion is determined; or (2) appoint another Hearing Officer to hear the Request for Review, in which case the motion shall be deemed moot.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Sections 11425.30 and 11425.40, Government Code.

HISTORY

1. New article 4 (sections 232.40–232.53) and section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).
2. Editorial correction redesignating article 4 as subarticle 4 (Register 2004, No. 33).

### § 232.41. Time and Place of Hearing.

(a) A hearing on the merits of a timely Request for Review shall be commenced within 90 days after the date it is received by the office of the Administrator. The hearing shall be conducted at a suitable location within the county where the appointed Hearing Officer maintains his or her regular office, unless the hearing is moved to a different county in accordance with subpart (b) below.

(b) Upon the agreement of the Parties or upon a showing of good cause by either the Party who filed the Request for Review or the Chief DAS, the hearing shall be conducted at a suitable location within either (1) the county where a majority of the subject public works employment was performed, or (2) any other county that is proximate to or convenient for the Parties and necessary witnesses.

(c) A suitable location under this section means one that is open and accessible to members of the public and which includes appropriate facilities for the recording of testimony. Any facility that is regularly used by any state agency or by the Awarding Body for public hearings and that will reasonably accommodate the anticipated number of Parties and witnesses involved in the proceeding, is presumed suitable in the absence of a contrary showing. Parties seeking to change the location of a hearing under subpart (b) shall make reasonable efforts to identify, agree upon, and arrange for the availability of a suitable location within a county specified in subpart (b)(1) or (b)(2).

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Section 11425.20, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.42. Open Hearing; Confidential Evidence and Proceedings; and Exclusion of Witnesses.

(a) Subject to the qualifications set forth below, the hearing shall be open to the public. If all or part of the hearing is conducted by telephone, television, or other electronic means, the Hearing Officer shall conduct the hearing from a location where members of the public may be physically present, and members of the public shall also have a reasonable right of access to the hearing record and any transcript of the proceedings.

(b) Notwithstanding the provisions of subpart (a), the Hearing Officer may order closure of a hearing or make other protective orders to the extent necessary to: (1) preserve the confidentiality of information that is privileged, confidential, or otherwise protected by law; (2) ensure a fair hearing in the circumstances of the particular case; or (3) protect a minor witness or a witness with a developmental disability from intimidation or other harm, taking into account the rights of all persons.

(c) Upon motion of any Party or upon his or her own motion, the Hearing Officer may exclude from the hearing room any witnesses not at the time under examination. However, a Party to the proceeding and the Party's Representative shall not be excluded.

(d) This section does not apply to any prehearing or settlement conference.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Section 11425.20, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.43. Conduct of Hearing.

(a) Testimony shall be taken only on oath or affirmation under penalty of perjury.

(b) Every Party shall have the right to call and examine witnesses; to introduce exhibits; to question opposing witnesses on any matter relevant to the issues even though that matter was not covered in the direct examination; to impeach any witness regardless of which Party first called the witness to testify; and to rebut any opposing evidence. A Party may be called by an opposing Party and examined as if under cross-examination, whether or not the Party called has testified or intends to testify on his or her own behalf.

(c) The Hearing Officer may call and examine any Party or witness and may on his or her own motion introduce exhibits.

(d) The Hearing Officer shall control the taking of evidence and other course of proceedings in a hearing and shall exercise that control in a manner best suited to ascertain the facts and safeguard the rights of the Parties. Prior to taking evidence, the Hearing Officer shall define the issues and explain the order in which evidence will be presented; provided that, for good cause the Hearing Officer later may vary the order of presentation as circumstances warrant.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.44. Evidence Rules; Hearsay.

(a) The hearing need not be conducted according to technical rules relating to evidence and witnesses. Any relevant evidence shall be admitted if it is the sort of evidence on which responsible persons are accustomed

to rely in the conduct of serious affairs, regardless of the existence of any common law or statutory rule which might make improper the admission of such evidence over objection in civil actions.

(b) The rules of privilege shall be recognized to the same extent and applied in the same manner as in the courts of this state.

(c) The Hearing Officer may exclude evidence if its probative value is substantially outweighed by the probability that its admission will necessitate undue consumption of time.

(d) Hearsay evidence is admissible but shall not be sufficient in itself to support a finding unless it either would be admissible over objection in a civil action or no Party raises an objection to such use. Unless previously waived, an objection or argument that evidence is insufficient in itself to support a finding because of its hearsay character shall be timely if presented at any time before submission of the case for decision.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.45. Official Notice.

(a) A Hearing Officer may take official notice of (1) the Director's General Prevailing Wage Determinations, the Director's Precedential Coverage Decisions, precedential decisions of the Administrator, and wage data, studies, and reports issued by the Division of Labor Statistics and Research; (2) any other generally accepted technical fact within the fields of labor and employment that are regulated by the Director under Divisions 1, 2, and 3 of the Labor Code; and (3) any fact which either must or may be judicially noticed by the courts of this state under Evidence Code sections 451 and 452.

(b) The Parties participating in a hearing shall be informed of those matters as to which official notice is proposed to be taken and given a reasonable opportunity to show why and the extent to which official notice should or should not be taken.

(c) The Hearing Officer or the Director shall state in a decision, order, or on the record the matters as to which official notice has been taken.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.46. Failure to Appear; Relief from Default.

(a) Upon the failure of any Party to appear at a duly noticed hearing, the Hearing Officer may enter a default for failure to appear, or proceed in that Party's absence and may recommend whatever decision is warranted by the available evidence, including any lawful inferences that can be drawn from an absence of proof by the non–appearing Party.

(b) For good cause and under such terms as are just, the appointed Hearing Officer or the Director may relieve a Party from the effects of any failure to appear and order that a review proceeding be reinstated or reheard. A Party seeking relief from non–appearance shall file a written motion at the earliest opportunity and no later than 10 days following a proceeding of which the Party had actual notice. Such application shall be supported by an affidavit or declaration based on the personal knowledge of the declarant, and copies of the application and any supporting materials shall be served on all other Parties to the proceeding. No application shall be granted unless and until the other Parties have been afforded a reasonable opportunity to make a showing in opposition. An Order reinstating a proceeding or granting a rehearing under this section may be conditioned upon providing reimbursement to the Department and the other Parties for the costs associated with the prior non–appearance.

(c) Notwithstanding any application or showing made under subpart (b) of this Rule, neither the Hearing Officer nor the Administrator may reinstate any Request for Review where the underlying Determination of civil penalty or debarment has become final and entered as a court judgment.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.47. Contempt and Monetary Sanctions.

(a) If any Person in proceedings before a Hearing Officer disobeys or resists any lawful order or refuses, without substantial justification, to respond to a subpoena, subpoena duces tecum, or refuses to take the oath or affirmation as a witness or thereafter refuses to be examined or is guilty of misconduct during a hearing or so near the place thereof as to obstruct the proceedings, or violates the prohibition against ex parte communications under Rule 07 [Section 232.07] above, the Hearing Officer may do any one or more of the following: (1) certify the facts to the Superior Court in and for the county where the proceedings are held for contempt proceedings pursuant to Government Code section 11455.20; (2) exclude the Person from the hearing room; (3) prohibit the Person from testifying or introducing certain matters in evidence; and/or (4) establish certain facts, claims, or defenses if the Person in contempt is a Party.

(b) Either the Hearing Officer by separate order or the Administrator in his or her decision may order a Party, the Party's authorized Representative, or both, to pay reasonable expenses, including attorney's fees, incurred by another Party as a result of bad faith actions or tactics that are frivolous or solely intended to cause unnecessary delay as defined in section 128.5 of the Code of Civil Procedure. Such order or the denial of such an order shall be subject to judicial review in the same manner as a decision of the Administrator on the merits. The order shall be enforceable in the same manner as a money judgment or by the contempt sanction.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Sections 11455.10, 11455.20 and 11455.30, Government Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.48. Interpreters.

(a) Proceedings shall be conducted in the English language. The notice advising a Party of the hearing date shall also include notice of the Party's right to request an interpreter for a Party or witness who cannot speak or understand English, or who can do so only with difficulty, or who is deaf or hearing impaired as defined under Evidence Code section 754.

(b) A request for an interpreter for a Party or witness shall be submitted as soon as possible after the requesting Party becomes aware of the need for an interpreter and prior to the commencement of the hearing. The request should include information that (1) will enable the Hearing Officer and Department to obtain an interpreter with appropriate skills; and (2) will assist the Hearing Officer in determining whether the Department or the requesting Party should pay for the cost of the interpreter.

(c) Upon receipt of a timely request, the Hearing Officer shall direct the Department to provide an interpreter and shall also decide whether the Department or the requesting Party shall pay the cost of the interpreter, based upon an equitable consideration of all the circumstances, including the requesting Party's ability to pay.

(d) A person is qualified to serve as an interpreter if he or she (1) is on the current State Personnel Board List of Certified Administrative Hearing Interpreters maintained pursuant to Government Code section 11435.25; and (2) has also been examined and determined by the Department to be sufficiently knowledgeable of the terminology and procedures generally used in these proceedings.

(e) In the event that a qualified interpreter under subpart (d) is unavailable or if there are no certified interpreters for the language in which assistance is needed, the Hearing Officer may qualify and appoint another interpreter to serve as needed in a single hearing or case.

(f) Before appointment of an interpreter, the Hearing Officer or a Party may conduct a brief supplemental examination of the prospective interpreter to see if that person has the qualifications necessary to serve as an interpreter, including whether he or she understands terms and procedures generally used in these proceedings, can explain those terms and procedures in English and the other language being used, and can interpret those terms and procedures into the other language. An interpreter shall not have had any prior substantive involvement in the matter under

review, and shall disclose to the Hearing Officer and the Parties any actual conflict of interest or appearance of conflict. Any condition that interferes with the objectivity of an interpreter constitutes a conflict of interest. A conflict may exist if an interpreter is an employee of, acquainted with, or related to a Party or witness to the proceeding, or if an interpreter has an interest in the outcome of the proceeding.

(g) The Hearing Officer shall disqualify an interpreter if the interpreter cannot understand and interpret the terms and procedures used in the hearing or prehearing conference, has disclosed privileged or confidential communications, or has engaged in conduct which, in the judgment of the Hearing Officer, creates an appearance of bias, prejudice, or partiality.

(h) Nothing in this section limits any further rights extended by Evidence Code section 754 to a Party or witness who is deaf or hard of hearing.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.49. Hearing Record; Recording of Testimony and other Proceedings.

(a) The Hearing Officer and the Administrator shall maintain an official record of all proceedings conducted under these Rules. In the absence of a determination under subpart (b) below, all testimony and other proceedings at any hearing shall be recorded by audiotape. However, no recording by audiotape or otherwise shall be required of a duly noticed hearing at which none of the Parties appear. Recorded testimony or other proceedings need not be transcribed unless requested for purposes of further court review of a decision or order in the same case.

(b) Upon the application of any Party or upon his or her own motion, the Hearing Officer may authorize the use of a certified court reporter, videotape, or other appropriate means to record the testimony and other proceedings. Any application by a Party under this subpart shall be made at a prehearing conference or by prehearing motion filed no later than 10 days prior to the scheduled date of hearing. Upon the granting of any such application, it shall be the responsibility of the Party or Parties who made the application to procure and pay for the services of a qualified person and any additional equipment needed to record the testimony and proceedings by the requested means. Ordinarily the granting of such application will be conditioned on the applicant's paying for certified copies of the transcript for the official record and for the other Parties. The failure of a requesting Party to comply with this requirement shall not be cause for delaying the hearing on the merits, but instead shall result in the proceedings being tape recorded in accordance with subpart (a).

(c) The Parties may, at their own expense, arrange for the recording of testimony and other proceedings through a different means other than the one authorized by the Hearing Officer, provided that it does not in any way interfere with the Hearing Officer's control and conduct of the proceedings, and further provided that, it shall not be regarded as an official record for any purpose absent a stipulation by all of the Parties or order of the Hearing Officer.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.50. Burdens of Proof on Wages and Penalties.

(a) The Chief DAS has the burden of coming forward with evidence that the Affected Contractor, Subcontractor, or Responsible Officer (1) was served with a Determination of civil penalty or debarment in accordance with Rule 20 [Section 232.20]; (2) was provided a reasonable opportunity to review evidence to be utilized at the hearing in accordance with Rule 24 [Section 232.24]; (3) that such evidence provides prima facie support for the Determination of civil penalty or debarment; (4) where the civil penalty is set above zero, that the Chief DAS has considered all of the circumstances listed in Labor Code section 1777.7(f); (5) where debarment is sought, that the violation is serious, and that the Chief DAS has considered all of the circumstances listed in Labor Code section 1777.7(f); and, (6) where a Determination has issued against a prime contractor for the violations of a subcontractor, that the evidence provides prima facie support to show knowledge of the prime contractor or failure by the prime contractor to comply with requirements as listed under Labor Code section 1777.7(d).

(b) If the Chief DAS meets its initial burden under subpart (a), the Affected Contractor, Subcontractor, or Responsible Officer has the burden of producing evidence to disprove a knowing violation of Labor Code section 1777.5, to disprove the circumstances relied on by the Chief DAS under Labor Code section 1777.7(f), and to disprove knowledge of the prime contractor or failure ot the prime contractor to comply with the requirements as listed under Labor Code section 1777.7(d).

(c) All burdens of proof and burdens of producing evidence shall be construed in a manner consistent with relevant sections of the Evidence Code, and the quantum of proof required to establish the existence or non–existence of any fact shall be by a preponderance of the evidence, unless a higher standard is prescribed by law.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.51. [Reserved].

### § 232.52. Oral Argument and Briefs.

(a) Parties may submit prehearing briefs of reasonable length under such conditions as the appointed Hearing Officer shall prescribe. Parties shall also be permitted to present a closing oral argument of reasonable length at or following the conclusion of the hearing.

(b) There shall be no automatic right to file a post–hearing brief. However, the Hearing Officer may permit the Parties to submit written post–hearing briefs, under such terms as are just. The Hearing Officer shall have discretion to determine, among other things, the length and format of such briefs and whether they will be filed simultaneously or on a staggered (opening, response, and reply) basis.

(c) In addition to or as an alternative to post–hearing briefs, the Hearing Officer may also prepare proposed findings or a tentative decision or may designate a Party to prepare proposed findings and thereafter give the Parties a reasonable opportunity to present arguments in support of or opposition to any proposed findings or tentative decision prior to the issuance of a decision by the Director under Rule 60 [Section 232.60] below.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.53. Conclusion of Hearing; Time for Decision.

(a) The hearing shall be deemed concluded and the matter submitted either upon the completion of all testimony and post–hearing arguments or upon the expiration of the last day for filing any post–hearing brief or other authorized submission, whichever is later. Thereafter, the Administrator shall have 45 days within which to issue a written decision affirming, modifying, or dismissing the Determination of civil penalty or debarment.

(b) For good cause, the Hearing Officer may vacate the submission and reopen the hearing for the purpose of receiving additional evidence or argument, in which case the time for the Administrator to issue a written decision shall run from the date of resubmission.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

## Subarticle 5. Decision of the Administrator

### § 232.60. Decision.

(a) The appointed Hearing Officer shall prepare a recommended decision for the Administrator's review and approval. The decision shall contain a statement of the factual and legal basis for the decision, consistent with the requirements of Labor Code section 1777.7 and Government Code section 11425.50.

(b) A recommended decision shall have no status or effect unless and until approved by the Administrator and issued in accordance with subpart (c) below.

(c) A copy of the decision shall be served by first class mail on all Parties in accordance with the requirements of Code of Civil Procedure section 1013. If a Party has appeared through an authorized Representative, service shall be made on that Party at the last known address on file with the Chief DAS in addition to service on the authorized Representative.

NOTE: Authority cited: Section 1777.7, Labor Code; and Section 11400.20, Government Code. Reference: Section 1777.7, Labor Code; and Section 11425.50, Government Code.

HISTORY

1. New article 5 (sections 232.60–232.64) and section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).
2. Editorial correction redesignating article 5 as subarticle 5 (Register 2004, No. 33).

### § 232.61. Reconsideration.

(a) Upon the application of any Party or upon his or her own motion, the Administrator may reconsider or modify a decision issued under Rule 60 [Section 232.60] above for the purpose of correcting any error therein.

(b) The decision must be reconsidered or modified within 15 days after its date of issuance pursuant to Rule 60(c) [Section 232.60(c)]. Thereafter, the decision may not be reconsidered or modified, except that a clerical error may be corrected at any time.

(c) The modified or reconsidered decision shall be served on the Parties in the same manner as a decision issued under Rule 60 [Section 232.60].

(d) A Party is not required to apply for reconsideration before seeking judicial review of a decision of the Administrator. An application for reconsideration made by any Party shall not extend the time for seeking judicial review pursuant to Labor Code section 1777.7(c)(5) unless the Administrator issues a modified or reconsidered decision within the 15–day time limit prescribed in subpart (b) of this section.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.62. Final Decision; Time for Seeking Review.

(a) The decision of the Administrator issued pursuant to Section Rule 60 [Section 232.60] above shall be the final decision of the Director from which any Party may seek judicial review pursuant to the provisions of Labor Code section 1777.7(c)(6) and Code of Civil Procedure section 1094.5; provided however, that if the Administrator has issued a modified decision pursuant to and within the 15–day limit of the Administrator's reconsideration authority under Section Rule 61 [Section 232.61] above and Labor Code section 1777.7(c)(6), the right of review and time for seeking such review shall extend from the date of service of the modified decision rather than from the original decision.

(b) The modification of a decision to correct a clerical error after expiration of the 15–day time limit on the Administrator's reconsideration authority shall *not* extend the time for seeking judicial review.

(c) The time for seeking judicial review shall be determined from the date of service of the decision of the Administrator under Code of Civil Procedure section 1013, including any applicable extension of time provided in that statute.

(d) Any petition seeking judicial review of a decision under these Rules may be served (1) upon the Administrator by serving the Office of the Director — Legal Unit where the appointed Hearing Officer who conducted the hearing on the merits regularly maintains his or her office; and (2) upon the Chief DAS by the serving the regular office of the attorney who represented the Chief DAS at the hearing on the merits. The intent of this subpart is to authorize and designate a preferred method for giving the Administrator and the Chief DAS formal notice of a court action seeking review of a decision of the Administrator under these Rules; it does not preclude the use any other service method authorized by law.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.63. Preparation of Record for Review.

(a) Upon notice that a Party intends to seek judicial review of a decision of the Administrator and the payment of any required deposit, the Department, under the direction of the Hearing Officer, shall immediately prepare a hearing record consisting of all exhibits and other papers and a transcript of all testimony which the Party has designated for the inclusion in the record on review.

(b) The Party who has requested the record or any part thereof shall bear the cost of its preparation, including but not necessarily limited to any court reporter transcription fees and reasonable charges for the copying, binding, certification, and mailing of documents. Absent good cause, no record will be released to a Party or filed with a court until adequate funds to cover the cost of preparing the record have been paid by the requesting Party to the Department or to any third party designated to prepare the record. However, upon notice that a Party seeking judicial review has been granted in *forma pauperis* status under California Rule of Court 985, the Department shall bear the cost of preparing and filing the record where necessary for a proper review of the proceedings.

(c) The pendency of any request for the Department to prepare a hearing record shall not extend the time limits for filing a petition for review under Labor Code section 1777.7(c)(5) and Code of Civil Procedure section 1094.5.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

### § 232.64. Request for Participation by Administrator in Judicial Review Proceeding.

Although the Administrator should be named as the Respondent in any action seeking judicial review of a final decision, the Administrator ordinarily will rely upon the Parties to the hearing (as Petitioner and Real Party in Interest) to litigate the correctness of the final decision in the writ proceeding and on any appeal. The Administrator may participate actively in proceedings raising issues that specifically concern the Administrator's authority under the statutes and regulations governing the payment of prevailing wages on public work contracts, or the validity of related laws, regulations, or the Director's decisions as to public works coverage or generally applicable prevailing wage rates, or the Administrator's precedential decisions under Labor Code section 1777.7(g). Any Party may request the Administrator to file a response in the action by including a separate written request with any court pleading being served on the Administrator in accordance with Rule 62(d) [Section 232.62(d)]. Any such separate written request should specify briefly what issues are raised by the petition that extend beyond the facts of the case and warrant the Administrator's participation.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 7–29–2004; operative 8–28–2004 (Register 2004, No. 31).

## Subarticle 6. Limitations Period

### § 232.70. Limitations Period for Determinations.

(a) A determination for violation of Labor Code section 1777.5 shall be issued and served on the Affected Parties no later than three years after date of accrual.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New article 6 (sections 232.70) and section filed 7-29-2004; operative 8-28-2004 (Register 2004, No. 31).
2. Editorial correction redesignating article 6 as subarticle 6 (Register 2004, No. 33).

### § 233. Appeals to the California Apprenticeship Council from Willful Hearings.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3082 and 3083, Labor Code.

HISTORY

1. Repealer and new section filed 4-9-90 as an emergency; operative 4-9-90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8-7-90. For prior history, see Register 82, No. 40.
2. Reinstatement of section as it existed prior to 4-9-90 emergency repeal and adoption filed 5-21-91 pursuant to Government Code section 11346.1(f) 120 days from effective date (Register 91, No. 47).
3. Repealer and new section filed 4-10-92; operative 5-11-92 (Register 92, No. 21).
4. Change without regulatory effect repealing section filed 12-15-2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 50).

### § 234. Determination of Willful Noncompliance.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. Repealer and new section filed 4-9-90 as an emergency; operative 4-9-90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8-7-90. For prior history, see Register 82, No. 40.
2. Reinstatement of section as it existed prior to 4-9-90 emergency repeal and adoption filed 5-21-91 pursuant to Government Code section 11346.1(f) 120 days from effective date (Register 91, No. 47).
3. Repealer and new section filed 4-10-92; operative 5-11-92 (Register 92, No. 21).
4. Change without regulatory effect repealing section filed 12-15-2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 50).

### § 234.1. Penalties Imposed Under Labor Code Section 1777.7.

If a contractor is found to have violated Labor Code Section 1777.5 in connection with more than one public works contract, penalties shall be imposed separately and consecutively for each violation.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 1777.7, Labor Code.

HISTORY

1. New section filed 4-9-90 as an emergency; operative 4-9-90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8-7-90.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. New section filed 4-10-92; operative 5-11-92 (Register 92, No. 21).

### § 234.2. Administrative Procedures Are Not the Exclusive Remedy For Violations.

The procedures in this Article are not intended to supersede, supplant, replace or limit any other means of enforcing the laws and regulations herein that may exist. The public agencies and political subdivisions administering them—the Chief, the Administrator and Council—or interested private parties, may initiate court proceedings where authorized under statutes in an appropriate case without recourse to (or during) administrative proceedings described under this Article. See, e.g., Labor Code Section 3084.5; Bus. & Prof. Code Section 17200, et seq. The initiation of administrative proceedings against a subcontractor shall not abrogate any responsibility attributed to any other contractor by statute.

NOTE: Authority cited: Section 1777.7, Labor Code. Reference: Section 3084.5, Labor Code; and Section 17200, et seq., Business and Professions Code.

HISTORY

1. New section filed 4-9-90 as an emergency; operative 4-9-90 (Register 90, No. 17). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8-7-90.
2. Repealed by operation of Government Code section 11346.1(g) 120 days from effective date (Register 91, No. 47).
3. New section filed 4-10-92; operative 5-11-92 (Register 92, No. 21).
4. Amendment filed 1-17-2002; operative 2-16-2002 (Register 2002, No. 3).

## Article 11. Joint Regulations Regarding Excess Costs for Related and Supplemental Instruction of Apprentices

### § 235. Scope.

Provisions of this Article apply only to those classes designed to provide related and supplemental instruction for apprentices and offered by local education agencies as authorized under Section 3074 of the California Labor Code.

The provisions of this article apply only in the event that there is a joint agreement between a local education agency and an apprenticeship program sponsor that excess costs incurred by the local education agency in connection with the program sponsored by the apprenticeship program sponsor shall be payable by the apprenticeship program sponsor. These regulations do not mandate such joint agreement. Once such joint agreement is reached, it shall be provided for as set forth in this article.

NOTE: Authority cited: Section 3074, Labor Code. Reference: Section 3074, Labor Code.

HISTORY

1. New Article 11 (Sections 235-241) filed 7-8-76; effective thirtieth day thereafter (Register 76, No. 28).
2. Amendment filed 5-31-85; effective thirtieth day thereafter (Register 85, No. 22).

### § 236. Definitions.

For the purpose of this article the following definitions apply:

(a) LEA (Local Education Agency) means any public education agency authorized by law to provide related and supplemental instruction for apprentices.

(b) Apprenticeship Program Sponsor means a joint apprenticeship committee, a unilateral apprenticeship committee or a party to a unilateral apprenticeship program where there is no apprenticeship committee established to administer apprenticeship in the occupation, area and industry. In any case the program sponsor must have approved written standards on file with the Division of Apprenticeship Standards.

(c) Joint Agreement means a written agreement between an LEA and an apprenticeship program sponsor(s) which stipulates the method of calculating the excess costs in accordance with this article and provides for the method of payment of such excess costs, if any, to said LEA by the apprenticeship program sponsor(s).

(d) Revenue earned means all revenue received by the LEA, as provided by law, for the hours of teaching time devoted to each apprentice enrolled in and attending classes of related and supplemental instruction conducted by the LEA.

[The next page is 8.3.]

(e) Excess costs means all allowable costs of the LEA for conducting related and supplemental instruction classes that exceed revenue earned by the LEA from the attendance of apprentices in related and supplemental instruction classes or programs.

(f) Attendance of apprentices means each hour of teaching time for each apprentice enrolled in and attending classes of related and supplemental instruction in accordance with Section 3074 of the Labor Code as reported on forms approved by the Superintendent of Public Instruction or the Chancellor.

NOTE: Authority cited: Section 3074, Labor Code. Reference: Section 3074, Labor Code; and Sections 8152 and 8153, Education Code.

HISTORY

1. Amendment filed 5–31–85; effective thirtieth day thereafter (Register 85, No. 22).

### § 237. General Terms and Conditions.

Pursuant to this article:

(a) Revenue earned and resulting costs of apprenticeship classes will be based on the attendance of apprentices only.

(b) Any joint agreement shall be completed prior to the beginning of course instruction and shall be reviewed annually, or as mutually agreed upon. Sponsors will be responsible only for those excess costs, if any, generated by their particular apprentices.

NOTE: Authority cited: Section 3074, Labor Code. Reference: Section 3074, Labor Code; and Sections 8152 and 8153, Education Code.

HISTORY

1. Amendment filed 5–31–85; effective thirtieth day thereafter (Register 85, No. 22).

### § 238. Calculation of Costs.

The costs of each apprenticeship program conducted by an LEA pursuant to a joint agreement is to be calculated separately.

(a) The allowable costs of an apprenticeship program will consist of the following as jointly agreed upon:

(1) Direct Costs. Identifiable expenses incurred to conduct the apprenticeship program in the classroom or at its location including instructional salaries and benefits, books and supplies, equipment replacement, contracted services, and capital outlay.

Where the expense is not exclusively for the apprenticeship program, only the prorated portion applicable to the apprenticeship program may be charged.

(2) Direct Support Charges. Identifiable expenses incurred in a support program directly benefitting the apprenticeship program.

Where the expense is not exclusively for the apprenticeship program, only the prorated portion applicable to the apprenticeship program may be charged.

The determination as to what items of direct support are applicable and the method or basis of charging to the apprenticeship program shall be mutually agreed upon and made a part of the joint agreement between the apprenticeship program sponsor(s) and the LEA.

(3) Indirect Support Charges. Identifiable expenses incurred for routine services not performed as a special service for a particular apprenticeship program but supportive of all programs conducted by the LEA.

Where the expense is not exclusively for the apprenticeship program, only the prorated portion applicable to the apprenticeship program may be charged.

The determination as to what items of noninstructional support are applicable and the method or basis of charging indirect support to the apprenticeship program shall be mutually agreed upon and made a part of the joint agreement between the apprenticeship program sponsor(s) and the LEA.

NOTE: Authority cited: Section 3074, Labor Code. Reference: Section 3074, Labor Code.

HISTORY

1. Repealer of former Section 238 and renumbering and amendment of former Section 239 to Section 238 filed 5–31–85; effective thirtieth day thereafter (Register 85, No. 22).

### § 239. Determining Excess Costs.

If the costs of an apprenticeship program are greater than the revenue earned, the excess revenue earned from any other apprenticeship program(s) conducted by the LEA must be allocated on a pro rata basis to reduce the excess costs of the remaining program(s). Any excess costs remaining after allocation of any excess revenue earned can be claimed for payment from the apprenticeship program sponsor(s) pursuant to Section 240. If, after allocation of any excess revenue earned, no excess costs remain, no payment is required.

NOTE: Authority cited: Section 3074, Labor Code. Reference: Section 3074, Labor Code.

HISTORY

1. Renumbering of former Section 239 to Section 238, and renumbering and amendment of former Section 240 to Section 239 filed 5–31–85; effective thirtieth day thereafter (Register 85, No. 22).

### § 240. Payment.

Upon the close of the school year or at other such time as may be specified in the joint agreement, all excess costs incurred by the LEA shall be verified to the apprenticeship program sponsor(s) and shall be payable by the apprenticeship program sponsor(s) directly to the LEA in accordance with the joint agreement between such sponsor(s) and the LEA.

All LEA's providing related and supplemental instruction for apprentices that have executed a joint agreement with an apprenticeship program sponsor(s) shall submit a copy of the agreement and report any excess costs payments received to the Chancellor of the California Community Colleges or Superintendent of Public Instruction, as appropriate, and to the Division of Apprenticeship Standards on forms provided.

NOTE: Authority cited: Section 3074, Labor Code. Reference: Section 3074, Labor Code.

HISTORY

1. Renumbering of former Section 240 to Section 239, and renumbering and amendment of former Section 241 to Section 240 filed 5–31–85; effective thirtieth day thereafter (Register 85, No. 22).

### § 241. Payment.

NOTE: Authority cited: Section 3074, Labor Code. Reference: Section 3074, Labor Code.

HISTORY

1. Renumbering and amendment of Section 241 to Section 240 filed 5–31–85; effective thirtieth day thereafter (Register 85, No. 22).

## Article 12. Apprenticeship Program Fees

### § 242. Scope.

NOTE: Authority cited: Sections 54, 55 and 1777.8, Labor Code. Reference: Sections 1777.8, 3073 and 3077, Labor Code.

HISTORY

1. New section filed 11–20–90 as an emergency; operative 11– 20–90 (Register 91, No. 1). A Certificate of Compliance must be transmitted to OAL by 3–20–91 or emergency language will be repealed by operation of law on the following day.
2. Repealed by operation of law (Register 91, No. 21).
3. New section filed 4–24–91; operative 4–24–91 (Register 91, No. 21). A Certificate of Compliance must be transmitted to OAL by 8–22–91 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–24–91 order transmitted to OAL 6–11–91; disapproved by OAL and order of repeal as to 4– 24–91 order issued on 7–11–91 (Register 91, No. 45).
5. New section refiled 7–11–91 as an emergency; operative 7– 11–91 (Register 91, No. 45). A Certificate of Compliance must be transmitted to OAL by 11–8–91 or emergency language will be repealed by operation of law on the following day.
6. Repealed by operation of Government Code section 11346.1(g) (Register 92, No. 39).

### § 242.1. Definitions.

NOTE: Authority cited: Sections 54, 55 and 1777.8, Labor Code. Reference: Sections 1777.8, 3070, 3073, 3075 and 3077, Labor Code.

HISTORY

1. New section filed 11–20–90 as an emergency; operative 11– 20–90 (Register 91, No. 1). A Certificate of Compliance must be transmitted to OAL by

3–20–91 or emergency language will be repealed by operation of law on the following day.
2. Repealed by operation of law (Register 91, No. 21).
3. New section filed 4–24–91; operative 4–24–91 (Register 91, No. 21). A Certificate of Compliance must be transmitted to OAL by 8–22–91 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–24–91 order transmitted to OAL 6–11–91; disapproved by OAL and order of repeal as to 4–24–91 order issued on 7–11–91 (Register 91, No. 45).
5. New section refiled 7–11–91 as an emergency; operative 7–11–91 (Register 91, No. 45). A Certificate of Compliance must be transmitted to OAL by 11–8–91 or emergency language will be repealed by operation of law on the following day.
6. Repealed by operation of Government Code section 11346.1(g) (Register 92, No. 39).

### § 242.2. Assessment Fee Determination and Collection.

NOTE: Authority cited: Sections 54, 55, and 1777.8, Labor Code. Reference: Section 1777.8, Labor Code.

HISTORY

1. New section filed 11–20–90 as an emergency; operative 11–20–90 (Register 91, No. 1). A Certificate of Compliance must be transmitted to OAL by 3–20–91 or emergency language will be repealed by operation of law on the following day.
2. Repealed by operation of law (Register 91, No. 21).
3. New section filed 4–24–91; operative 4–24–91 (Register 91, No. 21). A Certificate of Compliance must be transmitted to OAL by 8–22–91 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–24–91 order transmitted to OAL 6–11–91; disapproved by OAL and order of repeal as to 4–24–91 order issued on 7–11–91 (Register 91, No. 45).
5. New section refiled 7–11–91 as an emergency; operative 7–11–91 (Register 91, No. 45). A Certificate of Compliance must be transmitted to OAL by 11–8–91 or emergency language will be repealed by operation of law on the following day.
6. Repealed by operation of Government Code section 11346.1(g) (Register 92, No. 39).

### § 242.3. Program Sponsor Registration Fee.

NOTE: Authority cited: Sections 54, 55 and 1777.8, Labor Code. Reference: Sections 1777.5 and 1777.8, Labor Code.

HISTORY

1. New section filed 11–20–90 as an emergency; operative 11–20–90 (Register 91, No. 1). A Certificate of Compliance must be transmitted to OAL by 3–20–91 or emergency language will be repealed by operation of law on the following day.
2. Repealed by operation of law (Register 91, No. 21).
3. New section filed 4–24–91; operative 4–24–91 (Register 91, No. 21). A Certificate of Compliance must be transmitted to OAL by 8–22–91 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–24–91 order transmitted to OAL 6–11–91; disapproved by OAL and order of repeal as to 4–24–91 order issued on 7–11–91 (Register 91, No. 45).
5. New section refiled 7–11–91 as an emergency; operative 7–11–91 (Register 91, No. 45). A Certificate of Compliance must be transmitted to OAL by 11–8–91 or emergency language will be repealed by operation of law on the following day.
6. Repealed by operation of Government Code section 11346.1(g) (Register 92, No. 39).

### § 242.4. Collection of Excess Fees.

NOTE: Authority cited: Sections 54, 55 and 1777.8, Labor Code. Reference: Section 1777.8, Labor Code.

HISTORY

1. New section filed 11–20–90 as an emergency; operative 11–30–90 (Register 91, No. 1). A Certificate of Compliance must be transmitted to OAL by 3–20–91 or emergency language will be repealed by operation of law on the following day.
2. Repealed by operation of law (Register 91, No. 21).
3. New section filed 4–24–91; operative 4–24–91 (Register 91, No. 21). A Certificate of Compliance must be transmitted to OAL by 8–22–91 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–24–91 order transmitted to OAL 6–11–91; disapproved by OAL and order of repeal as to 4–24–91 order issued on 7–11–91 (Register 91, No. 45).
5. New section refiled 7–11–91 as an emergency; operative 7–11–91 (Register 91, No. 45). A Certificate of Compliance must be transmitted to OAL by 11–8–91 or emergency language will be repealed by operation of law on the following day.
6. Repealed by operation of Government Code section 11346.1(g) (Register 92, No. 39).

### § 242.5. Non–Payment of Fees.

NOTE: Authority cited: Sections 54, 55 and 1777.8, Labor Code. Reference: Section 1777.8, Labor Code.

HISTORY

1. New section filed 11–20–90 as an emergency; operative 11–20–90 (Register 91, No. 1). A Certificate of Compliance must be transmitted to OAL by 3–20–91 or emergency language will be repealed by operation of law on the following day.
2. Repealed by operation of law (Register 91, No. 21).
3. New section filed 4–24–91; operative 4–24–91 (Register 91, No. 21). A Certificate of Compliance must be transmitted to OAL by 8–22–91 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–24–91 order transmitted to OAL 6–11–91; disapproved by OAL and order of repeal as to 4–24–91 order issued on 7–11–91 (Register 91, No. 45).
5. New section refiled 7–11–91 as an emergency; operative 7–11–91 (Register 91, No. 45). A Certificate of Compliance must be transmitted to OAL by 11–8–91 or emergency language will be repealed by operation of law on the following day.
6. Repealed by operation of Government Code section 11346.1(g) (Register 92, No. 39).

### § 242.6. Revised Assessment.

NOTE: Authority cited: Sections 54, 55 and 1777.8, Labor Code. Reference: Section 1777.8, Labor Code.

HISTORY

1. New section filed 11–20–90 as an emergency; operative 11–20–90 (Register 91, No. 1). A Certificate of Compliance must be transmitted to OAL by 3–20–91 or emergency language will be repealed by operation of law on the following day.
2. Repealed by operation of law (Register 91, No. 21).
3. New section filed 4–24–91; operative 4–24–91 (Register 91, No. 21). A Certificate of Compliance must be transmitted to OAL by 8–22–91 or emergency language will be repealed by operation of law on the following day.
4. Certificate of Compliance as to 4–24–91 order transmitted to OAL 6–11–91; disapproved by OAL and order of repeal as to 4–24–91 order issued on 7–11–91 (Register 91, No. 45).
5. New section refiled 7–11–91 as an emergency; operative 7–11–91 (Register 91, No. 45). A Certificate of Compliance must be transmitted to OAL by 11–8–91 or emergency language will be repealed by operation of law on the following day.
6. Repealed by operation of Government Code section 11346.1(g) (Register 92, No. 39).

## Subchapter 2. Other On–the–Job Training

## Article A–1. General Provisions

### § 250. Authority.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3090 and 3093, Labor Code.

HISTORY

1. Repealer of Article A–1 (Section 250) filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

## Article 1. Declaration of Policy and Purpose

### § 251. Declaration of Policy.

A bona fide state training program is defined as one that is approved by the Division of Apprenticeship Standards as being consistent with Labor Code Sections 3090 and 3093 and the applicable provisions of this Code.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3090 and 3093, Labor Code.

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HISTORY

1. Amendment of subsection (b) filed 5–24–74; effective thirtieth day thereafter (Register 74, No. 21).
2. Order of Repeal of subsections of (f) and (g) filed 6–3–85 by OAL pursuant to Government Code Section 11349.7; effective thirtieth day thereafter (Register 85, No. 26).
3. Renumbering of former article 1 to article 4, renumbering of former section 251 to section 262, renumbering of former article 2 to new article 1 and renumbering of former section 254 to new section 251 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 252. Definitions.

(a) "Competent evidence" as used in Section 259 is a transcript or abstract of the records required to be maintained pursuant to Section 255(b)(5), or an attestation by the training program sponsor stating that all training has been fully completed, on forms to be furnished by the Division of Apprenticeship Standards, demonstrating that the training program has been fully completed, certified by the training program sponsor, and endorsed by a representative of the Division of Apprenticeship Standards.

(b) "Training program sponsor" is a joint training committee, a unilateral training committee or the party to a unilateral training program where there is no training committee established or any combination thereof, and may include a school to career partnership.

(c) A "Training Committee" means those persons designated by the sponsor to act for it in the administration of the program.

(d) The term "trainee" means a person at least 16 years of age who has entered into a written agreement called a "trainee agreement" in accordance with Section 3093 of the Labor Code.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3090 and 3093, Labor Code.

HISTORY

1. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
2. Renumbering of former section 252 to section 263 and renumbering and amendment of former section 255 to new section 252 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 253. Operation of Training Programs.

The administration and operation of training programs shall be supervised by a training committee or single employer, which shall approve trainee agreements, adjust disputes and perform such other functions and duties as are agreed to in the training standards. A training program is not restricted to a local area of coverage and may provide for local, regional or statewide coverage in its standards.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Section 3090, Labor Code.

HISTORY

1. Amendment of subsection (a)(1) filed 8–27–76; effective thirtieth day thereafter (Register 76, No. 35).
2. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
3. Renumbering of former section 253 to section 264 and renumbering of former section 268 to new section 253, including amendment of section heading and section, filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

## Article 2. Training Standards

### § 254. Training Programs.

(a) Bona fide state training programs for other than apprenticeable occupations may be established through the adoption of written training standards by the interested parties, approved by the Division of Apprenticeship Standards.

(b) Application for approval shall be rejected when it is found to be inconsistent, incompatible or in conflict with apprenticeship policies or programs.

(c) To be approved, other on–the–job training programs must meet the following criteria:

(1) The program is for an occupation other than an apprenticeable occupation and is either for workers entering the labor market for the first time or for workers entering new occupations by reason of having been displaced from former occupations by economic, industrial, technological or scientific changes or developments;

(2) Such program is in accord with and agreed to by the parties to any applicable collective bargaining agreement and, where appropriate will include joint employer–employee cooperation;

(3) The training plan, content and duration of the program are adequate to qualify the trainee for the job for which the trainee is to be trained;

(4) There is reasonable assurance that the job for which the trainee is to be trained will be available at the end of the training period;

(5) The job for which the trainee is to be trained is a recognized occupation;

(6) The job for which the trainee is to be trained is one to which appointment is based upon skills and knowledge and not on such factors as length of service;

(7) The job for which the trainee is to be trained customarily requires a period of on–the–job training of not less than three months;

(8) Provision is made in the training standards for (i) vestibule or other pre–job training, if any, or (ii) related and supplemental instruction, if any, either full time before employment or part time combined with the on–the–job training. Related and supplemental classroom instruction, where appropriate, is the responsibility of and will be administered by state and local school boards responsible for vocational education;

(9) There are adequate facilities, equipment, and personnel in the training establishment to provide satisfactory training;

(10) Appropriate credit is given each trainee for previous training and work experience, if any, and wages and, the applicable training period are adjusted accordingly; and

(11) Provision is made for trainees to be selected, employed and trained under fair and impartial procedures without discrimination.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 3090, Labor Code.

HISTORY

1. Amendment of subsection (j) filed 5–24–74; effective thirtieth day thereafter (Register 74, No. 21).
2. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).
3. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
4. Renumbering of former article 2 to article 1, renumbering of former section 254 to section 251, renumbering of former article 4 to new article 2 and renumbering and amendment of former section 261 to new section 254 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 255. Content of Training Standards.

Training programs shall be established by written training standards agreed to by interested employers, employer associations and, if any, by an interested labor union where applicable, and approved by the Division of Apprenticeship Standards, if consistent with these regulations.

Training standards may be approved by the Division of Apprenticeship Standards provided they contain the following:

(a) A statement of the:

(1) occupation(s);

(2) party or parties to whom the standards apply and the geographic area;

(3) definition and duties of the trainee;

(b) Provisions for:

(1) establishment of a training committee, if applicable;

(2) administration of the standards;

(3) establishment of rules and regulations governing the program;

(4) determining the qualifications of employers if other than single employer program;

(5) a system to record trainee progress;

(6) graduated minimum wage schedule to be paid during the term of training;

(7) discipline of trainees, including a description of provisions for fair hearings, if any. Disciplinary measures may include provision for the suspension of a trainee from the training program for a fixed period not to exceed sixty (60) days;

(8) termination or recommendation of cancellation of trainee agreements;

(9) recommending issuance of a State Certificate of Training;

(10) revision of standards;

(11) training and education of the trainee in first aid, safe working practices and in the recognition of occupational health and safety hazards;

(12) a selection procedure;

(13) approval of the standards, and any revision of the standards, by the Division of Apprenticeship Standards.

(c) The names and signatures of the parties.

(d) Any apprenticeship committee provided for in this California Code of Regulations may serve as an apprenticeship and training committee to cover both apprenticeship and training programs.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Section 3090, Labor Code.

HISTORY

1. Amendment filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 36).
2. Renumbering of former section 255 to section 252 and renumbering and amendment of former section 262 to new section 255 filed 5-12-98; operative 6-11-98 (Register 98, No. 20).

### § 256. Wages.

Training standards and trainee agreements shall contain graduated wage schedules to be paid trainees that provide for reasonable uniform progressive wage increases during the term of training, except where other schedules are provided in applicable collective bargaining agreements, provided that in no case shall a training program be approved with a beginning wage which is lower than the minimum wages fixed by any federal or state law or regulation.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 3090, Labor Code.

HISTORY

1. Repealer filed 1-25-85; effective thirtieth day thereafter (Register 85, No. 4).
2. Renumbering of former section 258 to new section 256, including amendment of section heading and section, filed 5-12-98; operative 6-11-98 (Register 98, No. 20).

### § 257. Overtime Provision.

Overtime shall not interfere with or impair the training and shall not be detrimental to the health and safety of trainees.

NOTE: Authority cited: Sections 3071 and 3093, Labor Code. Reference: Sections 3071 and 3093, Labor Code.

HISTORY

1. Repealer filed 1-25-85; effective thirtieth day thereafter (Register 85, No. 4).
2. Renumbering of former section 259 to new section 257 filed 5-12-98; operative 6-11-98 (Register 98, No. 20).

### § 258. Working Conditions.

Trainees shall work under and with competent workers skilled in the occupation for which they are being trained and shall be assigned to working and learning tasks so that they master the on-the-job training provided for in the training standards.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071, 3090 and 3093, Labor Code.

HISTORY

1. Amendment filed 11-5-75 ; effective thirtieth day thereafter (Register 75, No. 45).
2. Amendment filed 9-27-82; effective thirtieth day thereafter (Register 82, No. 40).
3. Repealer of article 3 heading, renumbering of former section 258 to section 256 and renumbering and amendment of former section 260 to new section 258 filed 5-12-98; operative 6-11-98 (Register 98, No. 20).

### § 259. State Certificates of Training.

(a) A "Certificate of Training" attesting to the completion of training will be issued under the authority of the California Apprenticeship Council by the Division of Apprenticeship Standards upon request and upon receipt of such competent evidence as may be required by the California Apprenticeship Council.

(b) The certificate shall signify completion of training under standards and trainee agreements approved under State Law and these regulations.

(c) Completion of the entire training program by the trainee shall be attested to by the training program sponsor. The training program sponsor will attest to the related and supplemental instruction after consulting with the appropriate school authorities regarding the completion of the educational requirements of related and supplemental subjects.

(d) The certificate is in recognition of completion of training. The certificate may be granted to a trainee only when the trainee:

(1) in addition to credit for previous on-the-job training and related school instruction, which is of an approved nature, shall have completed not less than an additional twelve and one-half (12 1/2) percent of the total training program but not less than a three months as a trainee under these regulations; and

(2) demonstrated to the satisfaction of the training program sponsor mastery of the skills and knowledge of the prescribed program.

(e) The training program sponsor in recognition of unusual ability and progress in mastering the skills of the occupations and the related and supplemental education program may decrease the training period for individual trainees by not more than twelve and one-half (12 1/2) percent.

(f) Credit toward the training for work experience prior to the training may be given by the training program sponsor after verification and/or examination. Credit for partial completion of the education requirements for related and supplemental instruction may be given by the training program sponsor after consultation with the appropriate school authorities concerning the mastery of the related instruction ordinarily required of the trainees.

(g) In instances where school classes are not available or where attendance will result in an undue hardship on the trainee, the training program sponsor, after consultation with the appropriate school officials, may make arrangements for acceptance of educational experiences such as home study or correspondence courses as fulfilling the relate and supplemental educational requirement.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 3093, Labor Code.

HISTORY

1. New NOTE filed 9-27-82; effective thirtieth day thereafter (Register 10, No. 40).
2. Amendment filed 1-25-85; effective thirtieth day thereafter (Register 85, No. 4).
3. Renumbering of former section 259 to section 257 and renumbering of former section 272 to new section 259, including amendment of section heading and section, filed 5-12-98; operative 6-11-98 (Register 98, No. 20).

## Article 3. Selection Procedures

### § 260. Compliance.

Selection procedures must be in writing, approved by the training program sponsors, and

(a) Each training program sponsor shall:

(1) file a written copy of its selection procedures with the Chief DAS, which shall:

(A) be signed by the secretary and/or chair of the training committee; or

(B) be signed by the party to a unilateral training program where there is no training committee established; and

(C) signify the date of approval.

(2) provide each applicant making application with a copy of its selection procedure in summary form;

(3) have available for the study and/or perusal of any applicant, at the place(s) applications are accepted, a copy of its complete selection procedure which is on file with the Chief DAS.

(b) The employer, when authorized by the training committee to select the trainee, will have agreed in writing to abide by the standards and selection procedures.

(c) Exemption from this Article may be granted by the Chief DAS for good cause. Requests for exemption from Article 5, or any part thereof, of this code shall be made in writing to the Chief DAS and shall contain a statement of reasons supporting the request.

NOTE: Authority cited: Sections 3071 and 3090, Labor Code. Reference: Sections 3071 and 3091, Labor Code.

HISTORY

1. New NOTE filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
2. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).
3. Renumbering of former section 260 to section 258, renumbering of former article 5 to new article 3, and renumbering and amendment of former section 265 to new section 260 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 261. Content of Selection Procedures.

Selection procedures shall include such provisions as may be necessary to afford all applicants full and fair opportunity to apply for training and shall be without discrimination on the basis of sex, race, color, religion, ancestry, national origin, disability, sexual orientation, age, political affiliation or creed.

(a) They shall include the following:

(1) Required procedure for making written application.

(2) Procedure for handling applications, that is, the method of dating and recording applications and the acceptance and rejection of applicants and how the applicants are notified of their acceptance or rejection.

(3) Required minimum age limitations, if any.

(4) Required formal education, if any, or equivalency if permitted.

(5) Required physical examination, if any.

(6) Procedure for the scheduling of tests and oral interviews, if any.

(7) Required tests, if any, and by whom they are administered.

(8) Where applicable, the relative weight given for tests and oral interviews in the overall evaluation of the applicants.

(9) Procedure for acceptance, rejection and referral of applicants to job openings and how the applicants are so notified.

(10) Procedure for testing, rating and placing applicants with previous experience in a higher wage bracket (training period).

(b) Selection procedures shall not include the following:

(1) Numerical rating of applicants based on their educational experience in excess of minimum educational requirements.

(2) Test designed to determine the skill and knowledge of the occupation itself.

(3) A requirement for a driver's license as a condition of accepting or processing an application.

(4) A requirement of residency as a condition of accepting or processing an application.

NOTE: Authority cited: Sections 3071 and 3090, Labor Code. Reference: Section 3071, Labor Code.

HISTORY

1. Amendment of subsection (a)(1) filed 8–27–76; effective thirtieth day thereafter (Register 76, No. 35).
2. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
3. Renumbering of former article 4 to article 2, renumbering of former section 261 to section 254, and renumbering and amendment of former section 266 to new section 261 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

## Article 4. Procedures for Investigating, Holding Hearings and Determining Disputes

### § 262. Filing of Complaints.

(a) Any interested person may file a complaint with the Administrator of Apprenticeship or the Administrator of Apprenticeship upon his/her own initiative may issue a complaint, when there is cause to believe that a decision, order or action of a training program sponsor (as defined in Section 252(b)) has been unfair or unreasonable; or that there has been a violation of:

(1) Chapter 4, Division 3 of the Labor Code;

(2) California Code of Regulations Title 8, Chapter 2, Part II;

(3) Training Standards;

(4) Trainee Agreements;

(5) Selection Procedures;

(6) Rules, Regulations or Policies established by a training program sponsor.

(b) Complaints filed with, or by, the Administrator of Apprenticeship shall be filed in writing within ninety (90) days of the date of the alleged violation or within thirty (30) days of a decision by, an order by, or an action of a program sponsor to adjust the matter locally, whichever is latest, and shall contain the following:

(1) The full name and address of the party (person, organization, or other party) filing the complaint (hereinafter referred to as the "charging party").

(2) The full name and address of the party (person, organization or other party) against whom the complaint is made (hereinafter referred to as the "respondent").

(3) A clear and concise statement of the facts constituting the alleged complaint.

(4) The signature of the person filing the complaint or an authorized officer or agent in the case of an organization, employer, labor union, training program sponsor or other interested party.

(5) A declaration by the person signing the complaint, under penalties of law, that its contents are true and correct to the best of his/her knowledge and belief.

(c) Upon receipt or issuance of a complaint the Administrator of Apprenticeship shall cause a copy of such complaint to be served upon the respondent(s).

(d) Complaints may be withdrawn only with the consent of the Administrator of Apprenticeship.

(e) The Administrator of Apprenticeship shall dismiss any complaint when it is found that the controversies or differences concerning the training agreement were adjusted locally or that there are provisions in a collective bargaining agreement for handling such disputes.

HISTORY

1. Amendment of subsection (e) filed 5–7–75; effective thirtieth day thereafter (Register 75, No. 19).
2. Amendment of subsection (a)(8) filed 11–5–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
4. Amendment of initial paragraph filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
5. Renumbering of former article 1 to new article 4, renumbering of former section 262 to section 255 and renumbering and amendment of former section 251 to new section 262 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 262.1. Discipline—Cancellation.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3073 and 3090, Labor Code.

HISTORY

1. New section filed 9–27–82; effective thirtieth day thereafter (Register 80, No. 40).

1. Repealer filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 263. Investigations, Holding of Hearings and Determinations.

(a) The Administrator of Apprenticeship, upon the timely receipt or issuance of a complaint under Section 262, shall investigate the matter to determine whether the complaint has merit, and in the course of such investigations, the Administrator of Apprenticeship may take such steps as he/she deems necessary under the circumstances to bring about an amicable adjustment of the controversy. The Administrator of Apprenticeship shall dismiss any complaint that is not timely filed and may, following an investigation, dismiss any complaint that is found to be without merit. In such cases the Administrator of Apprenticeship shall prepare a statement of his/her findings and determinations and file it with the California Apprenticeship Council, and notify all parties in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5 of his/her determination to dismiss the complaint.

(b) If the matter is not dismissed, withdrawn or settled satisfactorily, the Administrator of Apprenticeship shall hold a hearing in accordance with the following procedure:

(1) He/she shall fix the time and place of the hearing and notify all interested parties not less than two weeks in advance in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5 specifying the time and place of the hearing.

(2) The interested parties shall be given an opportunity to present evidence and oral or written arguments in support of their positions.

(3) The hearing need not be conducted according to technical rules relating to evidence and witnesses.

(4) All witnesses testifying before the Administrator of Apprenticeship shall testify under oath.

(5) A full transcript of the hearing shall be taken by a qualified person.

(c) The Administrator of Apprenticeship or his/her duly authorized representative may conduct the investigation, hold the hearing and decide on the complaint. The Administrator of Apprenticeship may however delegate or authorize a representative only to hold a hearing and to report, reserving the authority to decide on the complaint. In that case, the duly authorized representative shall hold a hearing and submit to the Administrator of Apprenticeship the entire record of the hearing together with his/her written recommendations. The Administrator of Apprenticeship shall read the record and the written recommendations before deciding on the complaint.

(d) In deciding on the complaint, the Administrator of Apprenticeship or his/her duly authorized representative shall prepare a statement of findings of fact, make a decision, file it with the California Apprenticeship Council and notify all parties in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5 of the decision and of any action taken.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3081, 3082, 3090 and 3093, Labor Code.

HISTORY

1. Repealer filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
2. Renumbering and amendment of former section 252 to new section 263 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 264. Appeals to the California Apprenticeship Council.

(a) The following procedures shall be followed when an appeal is filed with the Council within ten (10) days from the date the parties are given notification of the determination. The parties shall be deemed to have been given notification five (5) days after notice has been sent to their address of record.

(1) The Chair of the Council shall appoint three (3) members of the Council to act as an appeal board. This appeal board shall consist of one member of the Council representing an employee organization and one member representing an employer organization; the third member will be a member who does not represent either of the aforementioned groups and shall act as chair of the appeal board.

(2) The appeal board shall review the entire record and may hold an appeal hearing thereon.

(3) In the event of a hearing, the designated chair of the appeal board shall fix the time and place of the hearing on the appeal and notify all interested parties to the appeal not less than two weeks in advance in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5 specifying the time and place of the hearing.

(4) The hearing on the appeal shall be limited to a review of the record before the Administrator of Apprenticeship and to oral or written arguments by interested parties to the appeal; except where the appeal board finds that there is relevant evidence which, in the exercise of reasonable diligence, could not have been produced or which was improperly excluded at the hearing before the Administrator of Apprenticeship. In such cases, the appeal board may admit such evidence to supplement the record and exercise its independent judgment upon all of the evidence in the record. The appeal board may, in its independent judgment, refer the matter to the program sponsor for reconsideration of its prior action, in an attempt to resolve the matter amicably.

(5) The appeal board shall submit a written report to the Council summarizing the evidence, findings of fact, and recommended decision. The Council shall take appropriate action on the recommended decision. If for any reason the Council rejects the appeal board's recommended decision, a complete copy of the record shall be furnished each member of the Council for independent review and consideration before any action is taken by the Council in rendering a decision.

(6) The Council will timely notify all parties to the appeal of its decision in writing in accordance with the Code of Civil Procedure Sections 1013a and 2015.5.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3082–3084, 3090 and 3093, Labor Code.

HISTORY

1. Amendment filed 5–24–74; effective thirtieth day thereafter (Register 74, No. 21).
2. Repealer filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).
3. Renumbering and amendment of former section 253 to new section 264 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

## Article 5. Selection Procedures

### § 265. Compliance.

NOTE: Authority cited: Sections 3071 and 3090, Labor Code. Reference: Sections 3071 and 3091, Labor Code.

HISTORY

1. New subsection (c) filed 5–7–75; effective thirtieth day thereafter (Register 75, No. 19).
2. New subsection (d) filed 5–20–77; effective thirtieth day thereafter (Register 77, No. 21).
3. Amendment filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
4. Amendment of subsections (a) and (c) filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
5. Renumbering of former article 5 to article 3 and renumbering of former section 265 to new section 260 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 266. Content of Selection Procedures.

NOTE: Authority cited: Sections 3071 and 3090, Labor Code. Reference: Section 3071, Labor Code.

HISTORY

1. Amendment of subsections (a)(4) and (a)(9) filed 5–24–74; effective thirtieth day thereafter (Register 74, No. 21).
2. Amendment filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
3. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
4. Renumbering of former section 266 to new section 261 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 267. Review and Compliance.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071, 3090 and 3093, Labor Code.

HISTORY

1. Amendment of subsection (b) filed 5–20–77; effective thirtieth day thereafter (Register 77, No. 21).

2. Repealer filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

## Article 6. Training Programs and Committees

### § 268. Local Training Programs.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Section 3090, Labor Code.

HISTORY

1. New NOTE filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
2. Repealer of article 6 (sections 268–271) and renumbering of section 268 to section 253 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

### § 269. Local Joint Training Programs.

HISTORY

1. Repealer filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).

### § 270. Local Unilateral Training Programs.

HISTORY

1. Amendment filed 5–24–74; effective thirtieth day thereafter (Register 74, No. 21).
2. Repealer filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).

### § 271. State and Regional Joint Training Advisory Committees.

NOTE: Authority cited: Sections 3071 and 3090, Labor Code. Reference: Section 3071, Labor Code.

HISTORY

1. Amendment filed 5–24–74; effective thirtieth day thereafter (Register 74, No. 1).
2. Amendment filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
3. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
4. Repealer filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

## Article 7. State Certificates of Training

### § 272. When Issued.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 3093, Labor Code.

HISTORY

1. Amendment of subsection (d) filed 5–24–74; effective thirtieth day thereafter (Register 74, No. 21).
2. Amendment filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
3. Repealer of article 7 (section 272) and renumbering and amendment of former section 272 to section 259 filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

## Article 8. Local Joint Training Committee Certificate of Authorization

HISTORY

1. Repealer of Article 8 (Section 273) filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).

## Article 9. Certificates of Meritorious Service

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3071 and 3093, Labor Code.

HISTORY

1. Repealer of Article 9 (Section 274) filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

## Subchapter 3. Journeyman On–the–Job Training

### § 280. Purpose and Intent.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3090 and 3093, Labor Code.

HISTORY

1. Amendment filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
2. Repealer filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).

### § 281. Declaration of Policy.

A state approved journeyman on–the–job training program is defined as one that is developed by its program sponsor and approved by the Division of Apprenticeship Standards as being consistent with Labor Code Sections 3090 and 3093 and applicable provisions of this Code.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3090 and 3093, Labor Code.

HISTORY

1. New NOTE filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
2. Amendment filed 1–25–85; effective thirtieth day thereafter (Register 85, No. 4).
3. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).

### § 282. Approval of Training Standards.

(a) Voluntarily developed training standards for journeyman on–the–job training programs shall be approved by the Division of Apprenticeship Standards if those standards meet the following criteria:

(1) They are agreed to and submitted in writing by the parties to any applicable collective bargaining agreement, by an employer, an employer association, or a union or its representative, and signed by the parties affected.

(2) The program is designed for journeymen in an apprenticeable occupation to keep them abreast of current techniques, methods and materials and to provide them opportunities for advancement in their industries and does not replace apprentices in approved apprenticeship programs.

(3) The period of training is of not less than three months' duration.

(4) There are adequate facilities, equipment and personnel to provide training.

(5) Provision is made for:

(A) Training in safety and safe practices.

(B) Necessary related and supplemental instruction, where applicable. Related and supplemental instruction will be administered by state and local boards responsible for vocational education.

(C) Adequate supervision and administration of the program.

(D) Adequate records to be kept to show the progress made by each journeyman in training toward the training objective.

(E) Journeymen in training to be selected, employed and trained under fair and impartial procedures without discrimination on the basis of sex, race, religion, color, ancestry, national origin, disability, sexual orientation, political affiliation, creed or age.

(F) Recommending issuance of State Certificates of Training to journeymen in training upon successful completion of training, attested to by the journeyman training program sponsor(s) by competent evidence which is defined as a transcript or abstract of the records required to be maintained pursuant to Section 282(a)(5)(D).

(G) Each journeyman in training to sign an agreement based on the provisions of the training standards, with a copy filed with the training program sponsor.

(b) Journeyman on–the–job programs may be administered by a joint training committee, a unilateral training committee or a single employer.

NOTE: Authority cited: Section 3071, Labor Code. Reference: Sections 3090 and 3093, Labor Code.

HISTORY

1. Amendment filed 9–27–82; effective thirtieth day thereafter (Register 82, No. 40).
2. Amendment of subsection (a) filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 36).
3. Amendment filed 5–12–98; operative 6–11–98 (Register 98, No. 20).

## Subchapter 4. Electrician Certification

### § 290.0. General.

Scope and Application: Improper electrical connections can result in fire or other damage to property and can cause injury and death. Any individual may apply for certification showing that the individual possesses the skill, knowledge and training to safely and competently make electrical connections of 100 volt–amperes or more in the course of doing work for a contractor licensed as a Class C–10 electrical contractor under the Contractors' State License Board Rules and Regulations. Certification displays an individual's expertise within the category of certification, and allows the individual to lawfully perform whatever part of the work within that category is work for which certification is required.

NOTE: Authority cited: Section 3099, Labor Code. References: Sections 3099–3099.4, Labor Code.

HISTORY

1. New subchapter 4 (sections 290.0–295.0) and section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment of section and NOTE filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

### § 290.1. Definitions.

Approved Curriculum is a program of classes covering the areas of subject matter content offered by an Educational Provider pursuant to a plan of classroom instruction and designated as approved by the Curriculum Committee.

Certified Electrician is one who has been certified pursuant to Labor Code section 3099.2 and these regulations under any of the certification categories established by DAS.

Chief DAS is the Chief of the Division of Apprenticeship Standards.

Curriculum Committee is the Electrician Certification Curriculum Committee established pursuant to Labor Code section 3099(a)(6).

Curriculum Standards are the standards for subject matter content for classroom instruction adopted by the Curriculum Committee.

DAS is the Division of Apprenticeship Standards.

Director is the Director of Industrial Relations.

Educational Provider is a community college or public school district or public educational institution, or a state–licensed private post–secondary institution under contract with a public educational institution, community college or public school district, or a private postsecondary educational institution approved or registered by the Bureau for Private Postsecondary and Vocational Education.

Electrician Trainee is an Electrician Trainee Registrant who has completed or is enrolled in an Approved Curriculum and is working under the direct supervision of a Certified Electrician, pursuant to Labor Code section 3099.4 and these regulations. Electrician Trainee Registrant is one who is registered with DAS pursuant to Labor Code section 3099.4 and these regulations.

Fire/Life Safety Technician is one who performs work for a C–10 electrical contractor involving the installation, construction or maintenance of systems covered by Article 760 of the National Electrical Code.

General Electrician is one who performs work for a C–10 electrical contractor installing, constructing or maintaining any electrical system that is covered by the National Electric Code.

National Electrical Code is the National Electrical Code 1999, National Fire Protection Association, Quincy, MA 02269.

NICET is the National Institute for Certification in Engineering Technologies.

Nonresidential Lighting Technician is one who performs work for a C–10 electrical contractor repairing, servicing and maintaining existing nonresidential lighting fixtures and installing retrofit upgrade fixtures. Such work does not include the installation of branch circuits or the alteration of existing branch circuits except a Nonresidential Lighting Technician may reconnect to existing power within 3 feet.

Residential Electrician is one who:

(1) performs work for a C–10 electrical contractor installing, constructing, or maintaining any electrical system that is covered by the National Electrical Code in single family homes and multi family units, including hotels and motels, where the primary occupancy of the building is considered residential and the maximum voltage received from a utility company is a 3 phase, 4 wire, 120/208 or 120/240 volts.

(2) performs work for a C–10 electrical contractor installing the required panel boards and feeders for commercial tenant space in a multi–family/multi–use occupancies falling under subsection (1) above, where less than 50 percent of the first floor level is used for commercial tenant space, but not performing any tenant improvement for these spaces.

(3) does not perform work in occupancies that fall under the scope of Article 517 of the National Electrical Code.

Voice Data Video Technician is one who performs work for a C–10 electrical contractor installing, constructing or maintaining any system that falls within the scope of National Electrical Code, Articles 725, 770 (non–composite cables only), 800 (non–hybrid cables only), 810 and 820.

NOTE: Authority cited: Sections 3099 and 3099.4, Labor Code. Reference: Sections 3099–3099.4, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment of section and NOTE filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
3. Amendment filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

### § 291.0. Types of Certification.

(a) An applicant may apply for certification as a General Electrician, a Residential Electrician, a Voice Data Video Technician, a Fire/Life Safety Technician or a Nonresidential Lighting Technician. A certification category describes the type of work that is performed by that category of electrician, but certification may not be required for all the work within the category.

(b) Certification in a particular category allows one to lawfully perform any work for which certification is required within the scope of that category, even when such work is also within the scope of another category. Certification as a General Electrician allows one to lawfully perform work for which certification is required in all categories.

NOTE: Authority cited: Sections 3099 and 3099.2, Labor Code. Reference: Sections 3099 and 3099.2, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment of section and NOTE filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

### § 291.1. Eligibility for Certification.

(a) In order to be certified, an applicant must have the required experience as set forth herein, and pass a certification examination under Section 291.3. An applicant must provide proof of experience which may be done by showing:

(1) successful completion of an apprenticeship program approved by the California Apprenticeship Council, the federal Bureau of Apprenticeship Training, or a state apprenticeship council authorized by the federal Bureau of Apprenticeship Training to approve apprenticeship programs, in the classification for which certification is sought; or

(2) on–the–job experience, as follows:

General Electrician: 8000 hours of work for a C–10 electrical contractor installing, constructing or maintaining electrical systems covered by the National Electrical Code. The 8000 hours must consist of work in two or more of the following areas, and the maximum number of hours in a particular area that may be counted toward the 8000 hour total are as follows:

Stock room and Material handling – 300 hours

Residential Wiring – 3000 hours

Commercial Wiring – 6000 hours
Industrial Wiring – 6000 hours
Voice Data and Video installation – 1500 hours
Underground Conduit installation – 750 hours
Troubleshooting and Maintenance – 1500 hours
Finish Work and fixtures – 600 hours
Fire/Life Safety, Nurse call – 600 hours

Residential Electrician: 4800 hours of work for a C–10 electrical contractor installing, constructing, or maintaining electrical systems covered by the National Electric Code. The 4800 hours must consist of work in one or more of the following areas, and the maximum number of hours in a particular area that may be counted toward the 4800 hour total are as follows:

Stock room and material handling – 300 hours
Residential Wiring – 4800 hours
Voice Data and Video installation – 150 hours
Underground Conduit installation – 300 hours
Troubleshooting and Maintenance – 600 hours
Finish work and fixture – 600 hours
Fire/Life Safety – 300 hours

Voice Data Video Technician: 4000 hours of work for a C–10 electrical contractor installing, constructing or maintaining any system that falls within the scope of National Electrical Code, Articles 725, 770 (non–composite cables only), 800 (non–hybrid cables only), 810 and 820. The 4000 hours must consist of work in one or more of the following areas, and the maximum number of hours in a particular area that may be counted toward the 4000 hour total are as follows:

Stock room and material handling – 300 hours
Installations, including wire pulling, terminations, control panels devices and finish work – 4000 hours
Troubleshooting and Maintenance – 750 hours
Trade Specific training related to Voice, Data, Video – 300 hours

Fire/Life Safety Technician: 4000 hours of work for a C–10 electrical contractor, involving the installation, construction or maintenance of systems as covered in Article 760 of the National Electrical Code. The 4000 hours must consist of work in one or more of the following areas, and the maximum number of hours in a particular area that may be counted toward the 4000 hour total are as follows:

Stock room and material handling – 300 hours
Installations, including wire pulling, terminations, control panels devices and finish work – 4000 hours
Troubleshooting and Maintenance – 750 hours
Nurse Call systems – 300 hours
Proprietary systems training related to Fire/Life Safety – 300 hours

The experience requirement for Fire/Life Safety Technician may also be satisfied by proof of NICET certification in Fire Alarm Systems at Level II or above. Nonresidential Lighting Technician: 2,000 hours of work installing, repairing and maintaining nonresidential lighting while employed by a C–10 electrical contractor engaged in the business of nonresidential lighting maintenance and retrofit installations. The 2,000 hours must consist of work in one or more of the following areas, and the maximum number of hours in a particular area that may be counted towards the 2,000 hour total are as follows:

Stockroom and material handling – 150 hours
Maintenance of lighting fixtures – 1750 hours
Installation of retrofit fixtures – 1500 hours
Trouble shooting and repairing – 500 hours

(b) Where an applicant holds a license as an electrician in another state and it is determined by the Chief DAS that the requirements for experience to hold a license in that state are comparable to the requirements of Section 291.1(a)(1) or Section 291.1(a)(2), the Chief may deem the applicant to have the required experience for certification.

(c) Where the applicant can show other experience, including military experience or relevant work for a low voltage systems contractor holding a C–7 license, the applicant may apply to the Chief DAS for credit toward some or all of the experience required under Section 291.1(a)(2) The Chief DAS may grant credit if the Chief determines that the experience is comparable to experience for which credit would be granted under Section 291.1(a)(1) or Section 291.1(a)(2).

NOTE: Authority cited: Section 3099, Labor Code. References: Sections 3099 and 3099.2, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
3. Amendment of subsection (a)(2) and NOTE filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

## § 291.2. Application for Certification and Examination.

(a) Any individual desiring to be certified as set forth in Section 291.0 must submit an application for certification and examination as set forth herein. The application and all information and attachments shall be submitted under penalty of perjury, and accompanied by all applicable fees as set forth herein. No application will be accepted for processing by the DAS unless accompanied by all required fees as set forth in Section 292.0 herein.

(b) Applications may be obtained from any District Office for the DAS, or from the DAS website at www.dir.ca.gov/das, and shall be filed by mailing the completed application to the following address:

DIVISION OF APPRENTICESHIP STANDARDS
ATTN: ELECTRICIAN CERTIFICATION UNIT
P.O. BOX 420603
SAN FRANCISCO, CA 94142–0603

(c) The application shall include:

(1) Type of certification desired.

(2) Full name of the applicant and any other names the applicant has used to work as an electrician within five years previous to the date of the application.

(3) Date of Birth and Driver's license or state identification card number.

(4) Mailing Address.

(5) Telephone Number (Day and Evening).

(6) Request for Spanish language examination if applicable.

(d) The applicant shall submit proof of experience as required under Section 291.1 with the application. Except as provided in subsections (f) and (g), only applicants who have the required experience are eligible to take the certification examination.

(e) Within 30 days of the receipt of an application, the DAS shall inform the applicant in writing whether the applicant is eligible to take the certification examination, or whether the application is deficient or the applicant has not submitted sufficient proof of experience to take the certification examination.

If the applicant is eligible to take the certification examination, the DAS shall provide the applicant with information about taking the examination. If the applicant does not take the examination within one year after being notified by DAS of eligibility to take the examination, the applicant must submit a new application to DAS and pay the required application and testing fee again.

If the application is deficient or the applicant has not submitted sufficient proof of experience, the DAS shall return the application materials and refund all fees to the applicant. The DAS shall advise the applicant of the information or documentation required and why the proof of experience is insufficient. The applicant may submit a new application and pay the required application and testing fees.

(f) A registered apprentice performing electrical work as part of an apprenticeship program approved under Labor Code sec. 3070 et seq., a federal Bureau of Apprenticeship Training program, or a state apprenticeship program authorized by the federal Bureau of Apprenticeship Training, who is within one year of completion of the apprenticeship term, is eligible to take the certification examination. Upon passing the examination, the apprentice shall be certified immediately upon completion of the term of apprenticeship.

(g) An Electrician Trainee is eligible to test for certification upon completing the Approved Curriculum for the classification for which certification is sought. The Electrician Trainee must submit proof of comple-

tion of the Approved Curriculum with the application and pay the required application and testing fees. The Electrician Trainee shall not be certified until he or she passes the examination and submits proof of experience for the classification for which certification is sought as required under Section 291.1. The Electrician Trainee Registrant must renew registration to continue as an Electrician Trainee Registrant until certified.

NOTE: Authority cited: Sections 3099 and 3099.4, Labor Code. References: Sections 3099–3099.4, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment of subsections (b), (c)(6) and (d), repealer and new subsection (e), new subsections (f) and (g) and amendment of NOTE filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
3. Editorial correction adding subsection (e) designator (Register 2006, No. 16).
4. Amendment of subsection (g) filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

### § 291.3. Certification Examination.

(a) All applicants must pass the written examination, established by the Chief DAS for the type of certification desired.

(b) The examination shall be validated by an independent test validation organization based on content developed by a job analysis.

(c) A description of the examination content and identification of relevant reference works will be provided by DAS upon request.

(d) The examination for each type of certification shall be given at least once per year, in at least two locations, one in Northern California and one in Southern California. DAS may give the examinations at additional times and in additional locations for the convenience of the applicant pool.

(e) Applicants requesting special accommodations for the examination on account of disability shall submit such requests to the Chief DAS or its designee. The Chief DAS or its designee shall respond promptly to such requests and may require additional information and/or documentation from the applicant.

(f) DAS shall provide for the administration of the certification examinations in Spanish, and to the extent practicable, other non–English languages spoken by a substantial number of applicants, as defined in Section 7296.2 of the Government Code, except insofar as the ability to understand warning signs, instructions, and other information in English is necessary for safety reasons.

(g) At the time of the examination, the applicant may be required to present valid photo identification and may be photographed for a certification card.

(h) DAS shall make information about electrician certification available in non–English languages spoken by a substantial number of construction workers, as defined in Section 7296.2 of the Government Code. Such information shall contain the basic information DAS makes available to the public in English regarding electrician certification and shall be sufficient to inform interested persons of the process by which one may become certified.

NOTE: Authority cited: Section 3099, Labor Code. References: Sections 3099–3099.3, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment of subsections (e) and (f), new subsection (h) and amendment of NOTE filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).

### § 291.4. Retesting.

An applicant may take the test as many times as he or she wishes under one application for one year following the date of the notification of eligibility to take the examination so long as there is at least 60 days between each sitting. The applicant must make payment of the test fee each time the test is taken. After one year following the date of notification of eligibility, an unsuccessful applicant must submit a new application and make new payment of fees.

NOTE: Authority cited: Section 3099, Labor Code. References: Section 3099, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
3. Editorial correction of section text (Register 2006, No. 16).

### § 291.5. Renewal and Replacements.

(a) Certification shall be renewed every three (3) years. To be eligible for renewal an applicant must provide proof under penalty of perjury of 32 hours further electrical education from an Educational Provider or from a state or federally approved apprenticeship program relevant to the type of certification, and must certify under penalty of perjury that he or she has worked in the industry 2000 hours within the previous three years. The same hours of education may be counted toward more than one category of certification.

(b) Within 30 days of the receipt of a renewal application, the DAS shall inform the applicant in writing either that certification has been renewed, or that the application is deficient or that applicant has submitted insufficient proof of further education. If the application is deficient or applicant has submitted insufficient proof of further education, DAS shall inform the applicant of the information or documentation required and why the proof of further education is insufficient.

(c) An individual who allows certification to lapse shall be required to retake the certification examination. A successful renewal application must be postmarked or received at DAS 30 days before the end of the certification period in order for certification to be renewed without a lapse.

(d) Any person whose certification card has been lost or mutilated may request a replacement card from the DAS. Such request shall be in writing and accompanied with a current address and phone number and replacement fee in the amount of 30% of the renewal fee specified in Section 292.0(c).

(e) For purposes of any continuing education or recertification requirement, individuals who become certified prior to the deadline for certification shall be treated as having become certified on the first anniversary of their certification date that falls after the certification deadline.

NOTE: Authority cited: Sections 3099 and 3099.4, Labor Code. References: Sections 3099–3099.4, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment of subsection (a), new subsections (b) and (c), subsection relettering, new subsection (e) and amendment of NOTE filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
3. Editorial correction amending subsection (d) (Register 2006, No. 16).
4. Amendment of subsection (a) filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

### § 292.0. Fees.

(a) The fee for initially applying for certification is $75.00.

(b) The fee for taking or retaking the examination is $100.00.

(c) The fee for renewal of certification is $100.00.

(d) The fee for registering as an Electrician Trainee Registrant is $25.00.

NOTE: Authority cited: Sections 3099 and 3099.4, Labor Code. References: Sections 3099–3099.5, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. New subsection (d) and amendment of NOTE filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
3. Amendment of subsection (d) filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

### § 293.0. Denial, Suspension, or Revocation of Certification; Appeals.

(a) The Chief DAS may for good cause deny certification to an applicant. Good cause shall exist when the applicant does not satisfy the requirements of Section 291.1 or has failed the certification examination. The Chief DAS shall provide the applicant with written notice of the denial at the address shown on the application for certification or other address known to the DAS.

(b) The Chief DAS may for good cause and after notice and, if requested, a hearing, suspend or revoke the certification of a person certi-

fied pursuant to this Subchapter. Good cause shall be deemed to exist if the person certified has committed gross negligence or fraud, or engaged in repeated acts of negligence during the performance of activities subject to the certification or if the person obtained certification through mistake, misrepresentation or fraud.

(c) For suspension or revocation of a certification, notice of the intention to suspend or revoke the certification shall be given in writing and served upon the person certified. Service shall be by personal service or certified mail to the person's address as shown on the certification application or other address known to the DAS. The notice shall specify the reasons for the action proposed to be taken by the DAS and the applicant's right to request a hearing.

(d) Any applicant may appeal the denial of certification to the Chief DAS. The appeal shall be in writing and made within 30 days of service of the denial. The applicant shall have the burden of establishing that he/she qualifies for certification. The Chief DAS shall rule on the appeal, and shall have discretion to hold a hearing on the appeal before the Chief DAS or his or her authorized representative prior to the ruling. Any hearing must commence within 90 days after the DAS receives the appeal of the denial of certification. The ruling shall be in writing and shall be sent to the applicant within 90 days after the DAS receives the appeal, or within 90 days after the last day of hearing, whichever is later. The decision of the Chief DAS shall be final, except for judicial review provided by law.

(e) An individual served with notice of the intention of the Chief DAS to suspend or revoke his or her certification may request a hearing with the Director by filing a written request for hearing with the Director within 30 days of service of the notice. Where no timely request for hearing has been made, the effective date of the suspension or revocation is deemed the 31st day following service of the notice of intention. The Director shall schedule a hearing before the Director or his or her authorized representative within 90 days after the Director receives the request for hearing. Following the hearing, the Director shall issue a written ruling that shall be sent to the appellant within 90 days after the last day of hearing. The decision of the Director shall be final except for judicial review provided by law.

NOTE: Authority cited: Section 3099, Labor Code. References: Section 3099, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment of subsections (d) and (e) filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).

### § 294.0. Enforcement.

Any person who displays a certificate, or otherwise claims to be certified, who is not certified shall be prohibited from taking the test for certification or from registering as an Electrician Trainee Registrant for a period of seven (7) years.

NOTE: Authority cited: Section 3099, Labor Code. References: Sections 3099 and 3099.4, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment of section and NOTE filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

### § 295.0. Publication of Names; Responsibility To Provide a Current Address.

(a) DAS shall publish, either electronically or in print, a current list of Certified Electricians and Electrician Trainee Registrants. Copies of this list shall be available to the public upon request and shall be updated yearly. The list shall include the zip code of the electrician's or trainee's mailing address.

(b) Applicants, Electrician Trainee Registrants, and Certified Electricians shall be responsible for notifying DAS of changes in mailing address.

NOTE: Authority cited: Section 3099, Labor Code. References: Sections 3099 and 3099.4, Labor Code.

HISTORY

1. New section filed 7–30–2002; operative 8–29–2002 (Register 2002, No. 31).
2. Amendment of section and NOTE filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
3. Amendment filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

### § 296.0. Curriculum Committee; Curriculum Standards; Approved Curriculum.

(a) The Curriculum Committee is comprised of the State Superintendent of Public Instruction, the Chancellor of the California Community Colleges, and the Chief DAS, or their respective designees. The Curriculum Committee shall meet at least twice a year, and a unanimous vote shall be necessary for committee action. Each committee member may appoint up to three non–voting advisory members to attend committee meetings. The Chief DAS or its designee will act as secretary for the committee.

The address of the Curriculum Committee is:

DIVISION OF APPRENTICESHIP STANDARDS
ATTN: ELECTRICIAN CERTIFICATION CURRICULUM COMMITTEE
P.O. BOX 420603
SAN FRANCISCO, CA 94142-0603

(b) The Curriculum Committee shall adopt Curriculum Standards that satisfy the requirements of Labor Code section 3099.4. DAS shall publish the Curriculum Standards, either electronically or in print, and they shall be available to the public upon request.

(c) To apply for designation of its curriculum as approved, an Educational Provider must submit to the Curriculum Committee a copy of its proposed curriculum, proof that the proposed curriculum has been certified by the State Department of Education, approved by the Chancellor of the California Community Colleges, or approved or registered by the Bureau for Private Postsecondary and Vocational Education, and a document that identifies how each element in the Curriculum Standards is covered in the proposed curriculum. Within 90 days of the receipt of an application, the Curriculum Committee shall inform the Educational Provider in writing either that the proposed curriculum is designated approved or that the application or the proposed curriculum is deficient, in which case the Curriculum Committee shall inform the Educational Provider the information or documentation required to complete the application and why the proposed curriculum is deficient.

(d) The Curriculum Committee may designate as approved a curriculum that partially satisfies the Curriculum Standards where the Educational Provider attests that it intends to offer, or to cooperate with other Educational Providers to offer, a complete Approved Curriculum for the type of certification involved in the future. Approval of partial curriculum must be renewed on a yearly basis until a complete curriculum is approved, by submitting a renewal request to the Curriculum Committee.

(e) An Educational Provider must include language in publications regarding its Approved Curriculum that notifies which elements of the Curriculum Standards are covered, and which are not. An Educational Provider that is not offering all classes required to satisfy the Curriculum Standards must disclose in all communications to students and to the public that it has only received approval for a partial curriculum, and shall not make any representations that it offers a complete Approved Curriculum. For purposes of this subsection, "all communications" means all communications describing the curriculum, program, or course offerings of the Approved Curriculum, and does not refer to communications regarding internal institutional matters sent to students who are already enrolled in the Approved Curriculum with the Educational Provider.

(f) An Educational Provider of Approved Curriculum must submit an annual notice to the Curriculum Committee on the anniversary of its effective date of approval, stating whether the Educational Provider is continuing to offer the Approved Curriculum, and whether any material changes have been made to the Approved Curriculum since the effective date of approval.

(g) An Educational Provider shall send a copy of its current Approved Curriculum to the Curriculum Committee within 30 days of a written request. The Curriculum Committee may review the Approved Curriculum of an Educational Provider at any time. The Curriculum Committee may withdraw approval if the Educational Provider does not continue to meet the Curriculum Standards, or fails to provide a copy of its current Ap-

proved Curriculum to the Curriculum Committee upon written request. The Curriculum Committee must notify an Educational Provider in writing 30 days before the effective date of a withdrawal of approval, and the notice must inform the Educational Provider the grounds for withdrawal, including the ways in which the curriculum does not meet the Curriculum Standards.

(h) DAS shall publish, either electronically or in print, a list of Educational Providers with Approved Curriculum. The list shall be made available to the public upon request.

NOTE: Authority cited: Sections 3099 and 3099.4, Labor Code. References: Sections 3099 and 3099.4, Labor Code.

HISTORY

1. New section filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
2. Amendment of subsections (c)–(d), new subsections (e)–(g) and subsection relettering filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

## § 296.1. Applying for and Renewing Registration as an Electrician Trainee Registrant.

(a) An individual who is enrolled in or has completed an Approved Curriculum may register with DAS as an Electrician Trainee Registrant by submitting an application as set forth herein. The application and all information and attachments must be submitted under penalty of perjury and accompanied by the applicable fee as set forth in Section 292.0. No application will be accepted for processing unless accompanied by the required fee.

(b) Applications may be obtained from any District Office for DAS or from DAS's website. Applications must be filed by mailing the completed application to the following address:

DIVISION OF APPRENTICESHIP STANDARDS
ATTN: ELECTRICIAN CERTIFICATION UNIT
P.O. BOX 420603
SAN FRANCISCO, CA 94142–0603

(c) The application must include:

(1) Full name of the applicant and any other names the applicant has used to work in the electrical industry within five years previous to the date of application.

(2) Date of birth and driver's license or state identification card number.

(3) Mailing address.

(4) Telephone number (Day and Evening).

(5) Proof of enrollment in or completion of an Approved Curriculum.

(6) Name, mailing address, and telephone number of current employer in the electrical industry, if any.

(d) Within 90 days of the receipt of an application, the DAS shall inform the applicant in writing either that the application is accepted for filing or that it is deficient or that the applicant has submitted insufficient proof of enrollment in or completion of an Approved Curriculum. If the application is deficient or the applicant has submitted insufficient proof of enrollment in or completion of an Approved Curriculum, the DAS shall inform the applicant of the information or documentation required and why the proof of enrollment in or completion of an Approved Curriculum is insufficient.

(e) An Electrician Trainee Registrant must renew his or her registration with DAS on an annual basis, by submitting a renewal application. The renewal application requirements are the same as that for the registration application, as set forth in subsections (a) through (c) above, except that no fee is required for renewal and the following additional information is required:

(1) Copies of transcripts showing Approved Curriculum classwork completed during the prior year; and,

(2) A list of the Electrician Trainee Registrant's employers in the electrical industry and on–the–job experience acquired during the prior year.

(f) Within 90 days of the receipt of a renewal application, the DAS shall inform the applicant in writing either that the registration has been renewed or that the application is deficient or that the applicant has submitted insufficient proof of further classwork or experience, in which case DAS shall inform the applicant of the information or documentation required and why the proof of further classwork or experience is insufficient.

(g) An individual whose registration as an Electrician Trainee Registrant was withdrawn, denied, or cancelled must show good cause to reapply as an Electrician Trainee Registrant.

NOTE: Authority cited: Sections 3099 and 3099.4, Labor Code. References: Sections 3099 and 3099.4, Labor Code.

HISTORY

1. New section filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
2. Amendment of section heading and subsections (a), (e) and (e)(2) and new subsection (g) filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

## § 296.2. Enrollment in an Approved Curriculum.

(a) For an individual to be considered enrolled toward the completion of an Approved Curriculum:

(1) the individual must be successfully completing at least 150 hours of classroom instruction from an approved Educational Provider each year, except that the individual who has fewer than 150 hours of classroom instruction remaining to complete the Approved Curriculum will be deemed enrolled during the final year while attending those classes to complete the Approved Curriculum; or,

(2) if within the first year of the Approved Curriculum, the individual must be attending classes on a schedule that will lead to the successful completion of 150 hours of classroom instruction from an approved Educational Provider within that first year (for example, an individual would need to be taking 50 hours of classroom instruction where the program offers three semesters per year, 75 hours where the program offers two semesters per year, or comparable hours based on the number of periods of instruction leading to 150 hours per year); provided, however, that an individual who certifies that he or she intends to enroll in the Approved Curriculum but that classes will not begin for a period of up to 180 days will be deemed enrolled for the period prior to beginning classes. This grace period will not be considered for purposes of assessing whether the individual is enrolled in sufficient hours of classroom instruction in the first year.

(b) For purposes of this section, a year is measured as a calendar year from when the individual begins classes. For example, an individual who begins classes on May 1 would have until April 30 of the following year to successfully complete 150 hours of classroom instruction under subsection (a)(1).

(c) Upon receipt of an application for registration as an Electrician Trainee Registrant, DAS may request verification of the applicant's enrollment from the Educational Provider.

(d) An Electrician Trainee Registrant must notify DAS if the registrant ceases to be enrolled in an Approved Curriculum without completing it.

(e) DAS will cancel the registration of an Electrician Trainee Registrant when notified that the registrant has ceased to be enrolled without completing an Approved Curriculum.

NOTE: Authority cited: Sections 3099 and 3099.4, Labor Code. References: Sections 3099 and 3099.4, Labor Code.

HISTORY

1. New section filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
2. Amendment filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

## § 296.3. Employment of Electrician Trainees.

(a) An employer who employs an Electrician Trainee to perform work for which certification would otherwise be required must ensure that the trainee is under the direct, on–site supervision of a Certified Electrician who is responsible for supervising no more than one trainee, but who also may be responsible for supervising registered apprentices. Registered apprentices are not to be counted as uncertified persons for purposes of this ratio. By employing an Electrician Trainee to perform work for which certification would otherwise be required, the employer attests that adequate supervision will be provided.

(b) An employer that fails to provide adequate supervision to an Electrician Trainee may be barred by the Chief DAS from employing trainees in the future.

(c) The Chief DAS shall serve written notice of the intention to bar an employer from employing Electrician Trainees. Service shall be by per-

sonal service or certified mail to the employer's address on file with the Contractor's State License Board or other address known to DAS. The notice shall specify the reasons for the action proposed to be taken by the DAS and the employer's right to request a hearing. The employer may request a hearing with the Director within 30 days of service of the notice. The Director shall schedule a hearing before the Director or his or her authorized representative within 90 days after the Director receives the applicant's request for hearing with the Director. Following the hearing, the Director shall issue a written ruling that shall be sent to the appellant within 90 days after the last day of hearing. The decision of the Director shall be final except for judicial review provided by law.

NOTE: Authority cited: Sections 3099 and 3099.4, Labor Code. References: Sections 3099 and 3099.4, Labor Code.

HISTORY

1. New section filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
2. Amendment of subsection (a) filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

### § 296.4. Denial or Cancellation of Registration as an Electrician Trainee Registrant; Appeals.

(a) The Chief DAS may for good cause deny an individual registration as an Electrician Trainee Registrant or cancel an individual's registration as an Electrician Trainee Registrant. The Chief DAS shall provide the individual with written notice of the denial or cancellation at the address shown on the application for registration or other address known to the DAS. Good cause shall be deemed to exist if the individual does not meet the requirements for registration or has committed gross negligence or fraud, or engaged in repeated acts of negligence during the performance of activities subject to the registration or if the person obtained registration through mistake, misrepresentation or fraud.

(b) An applicant or registrant may appeal the denial or cancellation of registration to the Chief DAS. The appeal shall be in writing and made within 30 days of service of the notice. The appellant shall have the burden of establishing that appellant qualifies for registration. The Chief DAS shall rule on the appeal, and shall have discretion to hold a hearing on the appeal before the Chief DAS or his or her authorized representative prior to the ruling. Any hearing must commence within 90 days after the DAS receives the applicant's appeal of the denial of registration. The ruling shall be in writing and shall be sent to the appellant within 90 days after the DAS receives the appeal, or within 90 days after the last day of hearing, whichever is later. The decision of the Chief DAS shall be final, except for judicial review provided by law.

NOTE: Authority cited: Sections 3099 and 3099.4, Labor Code. References: Sections 3099 and 3099.4, Labor Code.

HISTORY

1. New section filed 2–9–2006; operative 3–11–2006 (Register 2006, No. 6).
2. Amendment of section heading and subsection (a) filed 7–18–2008; operative 8–17–2008 (Register 2008, No. 29).

* * *

*Barclays Official*

# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

## Chapter 3. Fair Employment and Housing Commission

Vol. 8

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# Chapter 3. Fair Employment and Housing Commission

## Subchapter 1. Administration

NOTE: Authority cited: Section 1418(a), Labor Code; Section 35730.5(a), Health and Safety Code and Section 12935(a), Government Code. Reference: Part 4.5 of Division 2, Labor Code and Part 2.8 of Division 3 of Title 2, Government Code.

HISTORY

1. New Subchapter 1 (Sections 285.0–285.2) filed 4–26–78; effective thirtieth day thereafter (Register 78, No. 17).
2. Repealer of Subchapter 1 (Sections 285.0–285.2 filed 4–1–80; effective thirtieth day thereafter (Register 80, No. 14).

## Subchapter 2. Discrimination in Employment

### Article 1. General Matters

NOTE: Authority cited: Section 1418(a), Labor Code; Section 35730.5(a), Health and Safety Code and Section 12935(a), Government Code. Reference: Part 4.5 of Division 2, Labor Code and Part 2.8 of Division 3 of Title 2, Government Code.

HISTORY

1. New Subchapter 2 (Sections 285.5–296.4 not consecutive) filed 4–26–78; effective thirtieth day thereafter (Register 78, No. 17).
2. Repealer of Article 1 (Sections 285.5–285.6) filed 4–1–80; effective thirtieth day thereafter (Register 80, No. 14).

### Article 11. Age Discrimination

NOTE: Authority cited: Section 1418(a), Labor Code; Section 12935(a), Government Code. Reference: Sections 1420.1 and 1420.15, Labor Code; Sections 12941, 12942, Government Code.

HISTORY

1. Editorial renumbering of Article 11 (Sections 295.0–296.4) of Chapter 3, Title 8 to Subchapter 11 (Sections 7295.0–7296.4) of Division 4, Title 2 (Register 81, No. 3).

## Subchapter 4. Procedures of the Commission

### § 300. Definitions.

NOTE: Authority cited: Section 1418(a), Labor Code. Reference: Section 1410, et seq., Labor Code.

HISTORY

1. Repealer of Sections 300–310 filed 8–15–78 as procedural and organizational; effective upon filing (Register 78, No. 33). For former history, see Registers 60, No. 20; 67, No. 24; 72, No. 45; 74, No. 22; and 78, No. 17.
2. Editorial renumbering of Subchapter 4 (Sections 311–316) of Chapter 3, Title 8 to Chapter 4 (Sections 7400–7405) of Division 4, Title 2 (Register 81, No. 3).
3. Editorial renumbering of Subchapter 4 (Sections 317–323) of Chapter 3, Title 8 to Chapter 5 (Sections 8317–8323) of Division 4, Title 2 (Register 81, No. 3). For prior history, see Registers 79, No. 51; 75, No. 30; and 72, No. 45.



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# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

## Chapter 3.2. California Occupational Safety and Health Regulations (CAL/OSHA)

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# Chapter 3.2. California Occupational Safety and Health Regulations (CAL/OSHA)

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# Chapter 3.2. California Occupational Safety and Health Regulations (CAL/OSHA)

(Originally Printed 1-12-74)

## Subchapter 1. Regulations of the Director of Industrial Relations

## Article 1. Definitions Under California Occupational Safety and Health Act of 1973

### § 330. Definitions.

In this chapter unless otherwise specifically indicated:

(a) "Chief" means the Chief Administrative Officer of the Division of Occupational Safety and Health.

(b) "Working days" means Mondays through Fridays but shall not include Saturday, Sunday or State Holidays. In computing 15 working days, the day of receipt of any notice shall not be included, and the last day of the 15 working days shall be included.

(c) "Inspection" means any inspection of an employer's factory, plant, establishment, construction site, or other area, workplace or environment where work is performed by an employee of an employer and includes any inspection conducted pursuant to a complaint, any reinspection, or follow-up inspection.

(d) "Code" means the California Labor Code.

(e) "Order" included within the term "order" are the General Orders adopted by the Industrial Safety Board or the Industrial Accident Commission, Rules and Regulations promulgated by the Director of the Department of Industrial Relations and the Division of Occupational Safety and Health, decisions, requirements and orders made by the Division of Occupational Safety and Health.

(f) "Carcinogen" includes the following recognized cancer causing substances for which standards have been adopted:

(1) Any of the following substances and any compound, mixture, or product containing such substances:

(A) 2-acetylaminofluorene.
(B) 4-aminodiphenyl.
(C) Benzidine (and its salts).
(D) Bis (chloromethyl) ether.
(E) 3,3'-dichlorobenzidine (and its salts).
(F) 4-dimethylaminoazobenzene.
(G) Beta-naphthylamine.
(H) 4-Nitrobiphenyl.
(I) N-nitrosodimethylamine.
(J) Beta-propriolactone.
(K) Methyl chloromethyl ether.
(L) Alpha-naphthylamine.
(M) 4,4'-Methylenebis (2-Chloroaniline.)
(N) Ethyleneimine.

(2) Asbestos, including chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(3) Vinyl chloride.
(4) 1,2- dibromo -3 chloropropane (DBCP).
(5) Coke oven emissions
(6) Acrylonitrile.
(7) Inorganic Arsenic.
(8) Ethylene Dibromide (EDB)
(9) Ethylene Oxide
(10) Any other substance for which standards are adopted and in effect due to cancer causing properties and any compound, mixture, or product containing such a substance, except as specifically exempted from such standards.

(g) "Order To Take Special Action" means any order written by the Chief or his or her authorized representative which requires the employer to comply with applicable provisions of Division 5 of the California Labor Code, or with specific standards, orders or regulations of the Standards Board whose enforcement upon the employer are at the discretion of the Division

(h) "Serious injury or illness" means any injury or illness occurring in a place of employment or in connection with any employment which requires inpatient hospitalization for a period in excess of 24 hours for other than medical observation or in which an employee suffers a loss of any member of the body or suffers any serious degree of permanent disfigurement, but does not include any injury or illness or death caused by the commission of a Penal Code violation, except the violation of Section 385 of the Penal Code, or an accident on a public street or highway.

NOTE: Authority cited: Sections 54, 55, 6308, 6318 and 9004, Labor Code; and *Bendix Forest Products Corporation* v. *Division of Occupational Safety and Health* (1979) 25 Cal. 3d 465, (158 Cal. Rptr. 882). Reference: Sections 6302(h), 6308 and 6318 and 9004, Labor Code.

HISTORY

1. New Chapter 1, Group 1 (Sections 1-15) filed 1-4-74 as an emergency; effective upon filing (Register 74, No. 2).
2. Certificate of Compliance filed 5-3-74 (Register 74, No. 18).
3. Renumbering of Chapter 1, Group 1 (Sections 1-15) to Chapter 3.2, Group 1 (Sections 330, 331, 331.1-331.5, 332, 332.1, 332.2, 333-336 and 336.1) filed 7-31-74 as organizational and procedural; designated effective 8-1-74 (Register 74, No. 31).
4. Amendment of subsections (c), (d) and (r) and new subsection (s) filed 2-28-79; effective thirtieth day thereafter (Register 79, No. 9).
5. Amendment filed 12-28-84; effective thirtieth day thereafter (Register 84, No. 52).
6. New subsection (g) filed 9-19-85; effective thirtieth day thereafter (Register 85, No. 38).
7. Amendment of subsection (f) and new subsection (h) filed 1-15-87; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 87, No. 3).

## Article 2. Advance Notice of Inspections

### § 331. Advance Notice.

The intent of these regulations is the complete avoidance of the advance notice to employers of pending inspections or investigations unless there are important advantages in performance of inspections to be gained by the Division of Occupational Safety and Health. Any advance notification not allowed under these rules may constitute a violation of Labor Code Section 6321, punishable by a fine of not more than $1,000 or by imprisonment for not more than six months, or by both.

NOTE: Authority cited: Sections 54, 55 and 6321, Labor Code. Reference: Section 6321, Labor Code.

HISTORY

1. Amendment filed 2-28-79; effective thirtieth day thereafter (Register 79, No. 9).

### § 331.1. When Advance Notice Justified.

(a) Except when the investigation or inspection is to be made as the result of an employee complaint, situations justifying advance notice include the following:

(1) Situations of apparent imminent danger where prompt abatement is essential;

(2) Situations when, to be effective, the inspection must be arranged to assure availability of essential personnel or access to the site, equipment, or process;

(3) Other situations where, in the judgment of the Chief or his designee, the giving of advance notice is advantageous for achieving a thorough inspection.

(b) When the investigation or inspection is to be made as the result of an employee complaint, advance notice is to be authorized only if the situation appears to present imminent danger to the health or safety of an employee or employees.

NOTE: Authority cited: Sections 54, 55 and 6321, Labor Code. Reference: Section 6321, Labor Code.

HISTORY

1. Repealer of former Section 331.1 and renumbering and amendment of former Section 331.2 to Section 331.1 filed 12–28–84; effective thirtieth day thereafter (Register 84, No. 52). For prior history, see Register 79, No. 9.

### § 331.2. Time of Advance Notice.

The lapse of time between advance notice and the inspection shall not exceed a minimum that is consistent with the reason for such notice. In no instance will advance notice be given more than 24 hours prior to the scheduled inspection or investigation except in unusual circumstances, where imminent danger exists or where practical considerations mandate a longer period.

NOTE: Authority cited: Sections 54, 55 and 6321, Labor Code. Reference: Section 6321, Labor Code.

HISTORY

1. Renumbering and amendment of former Section 331.2 to Section 331.1 and renumbering and amendment of former Section 331.3 to Section 331.2 filed 12–28–84; effective thirtieth day thereafter (Register 84, No. 52). For prior history, see Register 79, No. 9.

### § 331.3. Notification to Employee Representative.

Any employer receiving advance notice shall promptly inform the employee representative of this fact, if there is one.

HISTORY

1. Renumbering and amendment of former Section 331.3 to Section 331.2 and renumbering of former Section 331.4 to Section 331.3 filed 12–28–84; effective thirtieth day thereafter (Register 84, No. 52). For prior history, see Register 79, No. 9.

### § 331.4. Arrangement for Inspection.

The employer receiving advance notice shall make any necessary arrangements at his place of business so that the inspection can proceed on schedule as planned.

HISTORY

1. Renumbering of former Section 331.4 to Section 331.3 and renumbering of former Section 331.5 to Section 331.4 filed 12–28–84; effective thirtieth day thereafter (Register 84, No. 52). For prior history, see Register 79, No. 9.

## Article 3. Citation, Notice, Special Order, Order to Take Special Action, Notice of No Violations After Investigation: Procedures

### § 332. Form of Citation.

The citation form shall set forth:

(a) The name of the employer, the employer's address and the workplace inspected;

(b) The nature of the violation, in specific terms with reference to the provision of the code, standard, regulation or order alleged to have been violated;

(c) Time allowed for correction of alleged violation;

(d) Rights of employees respecting the time fixed for correction of violations;

(e) Posting requirements

(f) Time within which an employer may contest a citation; and

(g) Such other information as the Division of Occupational Safety and Health deems appropriate for clear understanding of the form issued.

NOTE: Authority cited: Sections 54, 55 and 6317, Labor Code. Reference: Section 6317, Labor Code.

HISTORY

1. Amendment of subsection (g) filed 2–28–79; effective thirtieth day thereafter (Register 79, No. 9).
2. Amendment filed 12–28–84; effective thirtieth day thereafter (Register 84, No. 52).

### § 332.1. Issuance of Notice.

(a) If, after an inspection or investigation, the Division determines that a violation exists which is not classified as willful, serious, repeated, or related to a failure to abate, the Division may issue a Notice in lieu of citation if either of the following requirements are met:

(1) The violation does not bear a direct relationship upon employee safety or health, or;

(2) The violation bears a direct, but not immediate relationship upon employee safety or health, and is general or regulatory in nature.

(b) The Notice may be issued only if the criteria set forth in subdivision (a) hereof are satisfied, and in addition thereto, the employer agrees to abate the violative condition within a reasonable time as determined by the Division and agrees that the Notice will not be appealed. The agreement shall be indicated by the signature of the employer, or authorized employer representative, on the Notice itself.

(c) A Notice shall not be issued if the number of first instance violations, either general or regulatory, is 10 or more.

NOTE: Authority Cited: Sections 54, 55 and 6317, Labor Code. Reference: Section 6317, Labor Code.

HISTORY

1. Renumbering of former Section 332.1 to section 332.2 and new section 332.1 filed 1–15–87; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 87, No. 3). For prior history, see Registers 85, No. 38; 84, No. 52 and 75, No. 10.

### § 332.2. Issuance of Special Order.

If upon inspection or investigation the Division determines that an unsafe condition, device, or place of employment poses a threat to the health and safety of an employee which cannot be made safe under existing standards or orders of the Standards Board the Division may issue a special order.

NOTE: Authority cited: Sections 54, 55 and 6308, Labor Code. Reference: Sections 6305 and 6308, Labor Code.

HISTORY

1. Repealer of former Section 332.1 and renumbering and amendment of former Section 332.2 to Section 332.1 filed 12–28–84; effective thirtieth day thereafter (Register 84, No. 52). For prior history, see Register 75, No. 10.
2. Renumbering and amendment of former Section 332.1 to Section 332.3 and new Section 332.1 filed 9–19–85; effective thirtieth day thereafter (Register 85, No. 38).
3. Renumbering of former Section 332.2 to Section 332.3, and renumbering of former Section 332.1 to Section 332.2 filed 1–15–87; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 87, No. 3). For history of former Section 332.2, see Register 75, No. 10.

### § 332.3. Issuance of Order to Take Special Action.

After inspection or investigation the Division may require the employer to comply with applicable provisions of Division 5 of the California Labor Code or with specific standards or orders of the Standards Board whose enforcement upon the employer are at the discretion of the Division.

NOTE: Authority cited: Sections 54, 55 and 6308. Reference: Section 6308, Labor Code.

HISTORY

1. New section filed 9–19–85; effective thirtieth day thereafter (Register 85, No. 38). For history of former Section 332.2, see Register 75, No. 10.
2. Renumbering of former Section 332.3 to Section 332.4 and renumbering of former Section 332.2 to Section 332.3 filed 1–15–87; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 87, No. 3).

### § 332.4. Posting of Citation, Special Order, Order to Take Special Action, and Notice of No Violation After Investigation.

Citations issued pursuant to Labor Code Section 6317, Special Orders or Orders to Take Special Action issued pursuant to Labor Code Section 6308, and Notices of No Violation After Investigation issued pursuant to Labor Code Section 6318, or copies thereof, shall be posted at or near the referenced site of the violation or condition giving rise to the citation or order. The posted Citation, Special Order, Order to Take Special Action, or Notice of No Violation After Investigation shall be positioned so as to be easily read by employees working nearby. All postings shall be maintained for a period of three working days or until the unsafe condition is abated, whichever is longer.

NOTE: Authority cited: Sections 54, 55, 6308 and 6318, Labor Code. Reference: Sections 6305, 6308 and 6318, Labor Code.

HISTORY

1. Renumbering and amendment of former Section 332.1 to Section 332.3 filed 9–19–85; effective thirtieth day thereafter (Register 85, No. 38).

2. Renumbering of former Section 332.3 to Section 332.4 filed 1—15–87; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 87, No. 3).

## Article 4. Proposed Penalty Procedure

### § 333. Notice of Proposed Assessment of Civil Penalties.

Where a civil penalty is indicated, the Division shall after, or concurrent with the issuance of a citation, and within a reasonable time after the date the violation occurred, notify the employer by certified mail of the civil penalty proposed by the Division respecting the item(s) set forth as violation(s) in the citation. Any citation and/or Notice of Proposed Civil Penalty shall be deemed to be the final order of the Appeals Board, not subject to review by or appeal to any court or agency, unless within 15 working days from the date of the receipt of such citation or such notice of proposed civil penalty, the employer notifies the Appeals Board in writing of his intention to contest the citation and/or the civil penalty, with respect to violations alleged by the division, abatement periods, amount of proposed penalties, and the reasonableness of the changes required by the division to abate the condition.

NOTE: Authority cited: Sections 54, 55 and 6319, Labor Code. Reference: Section 6319, Labor Code.

HISTORY

1. Amendment filed 3–7–75; effective thirtieth day thereafter (Register 75, No. 10).
2. Amendment filed 12–28–84; effective thirtieth day thereafter (Register 84, No. 52).

### § 334. Classification of Violations and Definitions.

For purposes of penalty assessments, violations of occupational safety and health standards, violations of California Health and Safety Code Sections 2950 and 25910, orders, special orders and regulations are classified as follows:

(a) Regulatory Violation—is a violation, other than one defined as Serious or General that pertains to permit, posting, recordkeeping, and reporting requirements as established by regulation or statute. For example, failure to obtain permit; failure to post citation, poster; failure to keep required records; failure to report industrial accidents, etc.

(b) General Violation—is a violation which is specifically determined not to be of a serious nature, but has a relationship to occupational safety and health of employees.

(c) Serious Violation.

(1) A "serious violation" shall be deemed to exist in a place of employment if there is a substantial probability that death or serious physical harm could result from a violation, including, but not limited to, circumstances where there is a substantial probability that either of the following could result in death or great bodily injury:

(A) A serious exposure exceeding an established permissible exposure limit or

(B) A condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in the place of employment.

(2) Notwithstanding subsection (c)(1), a serious violation shall not be deemed to exist if the employer can demonstrate that it did not, and could not with the exercise of reasonable diligence, know of the presence of the violation.

(3) As used in subsection (c)(1), "substantial probability" refers not to the probability that an accident or exposure will occur as a result of the violation, but rather to the probability that death or serious physical harm will result assuming an accident or exposure occurs as a result of the violation.

(4) For Carcinogens—is a violation of any standard, order, or special order respecting the use of a carcinogen, as defined in 8 California Code of Regulations 330(f). However, the violation shall not be considered serious if the employer can demonstrate that he did not, and could not with the exercise of reasonable diligence, know of the presence of the violation or he can demonstrate that the Division should have determined that the violation was minor and resulted in no substantial health hazard.

(d) Repeat Violation

(1) General—is a violation where the employer has corrected, or indicated correction of an earlier violation, for which a citation was issued, and upon a later inspection is found to have committed the same violation again within a period of three years immediately preceding the latter violation. For the purpose of considering whether a violation is repeated, a repeat citation issued to employers having fixed establishments (e.g., factories, terminals, stores . . .) will be limited to the cited establishment; for employers engaged in businesses having no fixed establishments (e.g., construction, painting, excavation . . .) a repeat violation will be based on prior violations cited within the same Region of the Division.

(2) Field Sanitation Violations—Is a violation of the State Field Sanitation Standard, currently set forth in 8 CCR 3457, or of the Federal Field Sanitation Standard, currently set forth in 29 CFR 1928.110, where the employer has corrected, or indicated correction of an earlier violation, for which a citation was issued, and upon a later inspection is found to have committed the same violation within a period of five years immediately preceding the latter violation.

For the purpose of considering whether a violation is repeated, a repeat violation will be based on prior violations cited within the State.

(e) Willful Violation—is a violation where evidence shows that the employer committed an intentional and knowing, as contrasted with inadvertent, violation, and the employer is conscious of the fact that what he is doing constitutes a violation of a safety law; or, even though the employer was not consciously violating a safety law, he was aware that an unsafe or hazardous condition existed and made no reasonable effort to eliminate the condition.

(f) Abatement Date—is the date by which the employer is allowed and required to correct the condition constituting the violation.

NOTE: Authority cited: Sections 54, 55 and 6319, Labor Code. Reference: Sections 6302(i),6319, 6432 and 6712, Labor Code; and Sections 2950 and 25910, Health and Safety Code.

HISTORY

1. Amendment of subsection (c)(2) filed 2–28–79; effective thirtieth day thereafter (Register 79, No. 9). For prior history, see Registers 75, No. 10, 77, No. 1 and 77, No. 18.
2. Amendment of introductory paragraph and subsection (a) filed 12–28–84; effective thirtieth day thereafter (Register 84, No. 52).
3. Amendment of subsection (c) filed 9–19–85; effective thirtieth day thereafter (Register 85, No. 38).
4. Amendment of subsection (c) filed 1–15–87; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 87, No. 3).
5. Amendment of newly designated subsection (d)(1), new subsection (d)(2) and amendment of NOTE filed 7–30–96; operative 8–29–96 (Register 96, No. 31).
6. Amendment filed 12–16–99 as an emergency; operative 1–1–2000 pursuant to Government Code section 11343.4(c) (Register 99, No. 51). A Certificate of Compliance must be transmitted to OAL by 5–1–2000 or emergency language will be repealed by operation of law on the following day.
7. Certificate of Compliance as to 12–16–99 order transmitted to OAL 4–13–2000 and filed 5–11–2000 (Register 2000, No. 19).
8. Change without regulatory effect repealing subsection (d)(3) designator filed 7–10–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 28).

### § 335. Factors Considered in Assessing Civil Penalties.

In the assessment of civil penalties, the following factors shall be considered:

(a) The Gravity of the Violation—the Division establishes the degree of gravity of General and Serious violations from its findings and evidence obtained during the inspection/investigation, from its files and records, and other records of governmental agencies pertaining to occupational injury, illness or disease. The degree of gravity of General and Serious violations is determined by assessing and evaluating the following criteria:

(1) Severity.

(A) General Violation.

i. When the safety order violated pertains to employee illness or disease, Severity shall be based upon the degree of discomfort, temporary disability and time loss from normal activity (including work) which an

employee is likely to suffer as a result of occupational illness or disease which could result from the violation. Depending on the foregoing, Severity shall be rated as follows:

LOW— No time loss from work or normal activity; or minimum discomfort.

MEDIUM— Loss of part or all of a day from work or normal activity including time for medical attention; or moderate temporary discomfort.

HIGH— Loss of more than one day from regular work or normal activity including time for medical attention; or considerable temporary discomfort.

ii. When the safety order violated does not pertain to employee illness or disease, Severity shall be based upon the type and amount of medical treatment likely to be required or which would be appropriate for the type of injury that would most likely result from the violation. Depending on such treatment, Severity shall be rated as follows:

LOW— Requiring first-aid only.

MEDIUM— Requiring medical attention but not more than 24-hour hospitalization.

HIGH— Requiring more than 24-hour hospitalization.

(B) Serious Violation.

The Severity of a Serious violation is considered to be HIGH.

(2) Extent.

i. When the safety order violated pertains to employee illness or disease, Extent shall be based upon the number of employees exposed:

LOW— 1 to 5 employees.

MEDIUM— 6 to 25 employees.

HIGH— 26 or more employees.

ii. When the safety order violated does not pertain to employee illness or disease, Extent shall be based upon the degree to which a safety order is violated. It is related to the ratio of the number of violations of a certain order to the number of possibilities for a violation on the premises or site. It is an indication of how widespread the violation is. Depending on the foregoing, Extent is rated as:

LOW— When an isolated violation of the standard occurs, or less than 15% of the units are in violation.

MEDIUM— When occasional violation of the standard occurs or 15–50% of the units are in violation.

HIGH— When numerous violations of the standard occur, or more than 50% of the units are in violation.

(3) Likelihood.

Likelihood is the probability that injury, illness or disease will occur as a result of the violation. Thus, Likelihood is based on (i) the number of employees exposed to the hazard created by the violation, and (ii) the extent to which the violation has in the past resulted in injury, illness or disease to the employees of the firm and/or industry in general, as shown by experience, available statistics or records. Depending on the above two criteria, Likelihood is rated as:

LOW, MODERATE OR HIGH

(b) The Size of the Business of the Employer—is based upon the number of individuals employed at the time of the inspection/investigation. Size of the Business is evaluated based upon the following classifications of the number of persons employed:

10 or fewer employees.

11 to 25 employees.

26 to 60 employees.

61 to 100 employees.

More than 100 employees.

(c) The Good Faith of the Employer—is based upon the quality and extent of the safety program the employer has in effect and operating. It includes the employer's awareness of CAL/OSHA, and any indications of the employer's desire to comply with the Act, by specific displays of accomplishments. Depending on such safety programs and the efforts of the employer to comply with the Act, Good Faith is rated as:

GOOD— Effective safety program.

FAIR— Average safety program.

POOR— No effective safety program.

(d) The History of Previous Violations—is the employer's history of compliance, determined by examining and evaluating the employer's records in the Division's files. Depending on such records, the History of Previous Violations is rated as:

GOOD— Within the last three years, no Serious, Repeat, or Willful violations and less than one General or Regulatory violation per 100 employees at the establishment.

FAIR— Within the last three years, no Serious, Repeat, or Willful violations and less than 20 General or Regulatory violations per 100 employees at the establishment.

POOR— Within the last three years, a Serious, Repeat, or Willful violation or more than 20 General or Regulatory violations per 100 employees at the establishment.

For the purpose of this subsection, establishment and the three-year computation, shall have the same meaning as in Section 334(d) of this Article.

HISTORY

1. Amendment of subsections (a) and (b) filed 6–29–77; effective thirtieth day thereafter (Register 77, No. 27). For prior history, see Register 77, No. 18.

### § 336. Assessment of Civil Penalties.

Civil penalties for Regulatory, General, Serious, Repeat, Willful, and Failure to Abate violations shall be assessed in the following manner:

(a) Regulatory Violation—

(1) In General—Any employer who commits any Regulatory violation (as provided in Section 334(a) of this article) shall be assessed a civil penalty of up to $7000 for each such violation. Except as set forth in parts (2) through (6) of this subsection, a minimum proposed penalty of $500, representing the gravity of the violation, shall be assessed against employers who commit Regulatory violations. The proposed penalty shall be adjusted for Size, Good Faith, and History; however, an abatement credit shall not be granted.

(2) For Carcinogens—A minimum proposed penalty of $1,000 for all carcinogen standard regulatory violations, other than reporting use violations, representing the gravity of the violation, shall be assessed against the employers who commit such violations. The proposed penalty shall be adjusted for Size, Good Faith and History; however, an abatement credit shall not be granted.

(3) For Carcinogens Failure to Report Use. Any employer who violates a reporting requirement respecting the use of a carcinogen as defined in Title 8 of the California Code of Regulations section 330(f), shall be assessed a minimum proposed civil penalty of $2,500. The proposed penalty shall be adjusted for Size, Good Faith, and History; however, an abatement credit shall not be granted.

(4) For Violation of Permit or Registration Requirements. Any employer who violates the permit requirements of article 2, Permits—Excavations, Trenches, Construction and Demolition, and The Underground Use of Diesel Engines in Work in Mines and Tunnels, commencing with section 341 of Title 8 of the California Code of Regulations, or the Registration requirements of article 2.5, Registration—Asbestos-Related Work commencing with section 341.6 of Title 8 of the California Code of Regulations, shall be assessed a minimum proposed civil penalty of $1,250. The proposed penalty shall be adjusted for Size, Good Faith, and History; however, an abatement credit shall not be granted.

(5) For Violation of Elevator Permit and Posting Requirements. Any person owning or having custody, management, or operation of an elevator who operates any such elevator without a valid permit, or who fails to post the permit as required, may be assessed a civil penalty pursuant to the provisions of this article of up to $1000.

(6) For Failure to Report Serious Injury or Illness, or Death of an Employee — Any employer who fails to timely report an employee's injury or illness, or death, in vioaltion of section 342(a) of Title 8 of the California Code of Regulations, shall be assessed a minimum penalty of $5,000.

(b) General Violation—Any employer who violates any occupational safety and health standard, order or special order and such violation is determined to be a General violation (as provided in section 334(b) of this

article) may be assessed a civil penalty of up to $7000 for each such violation.

Gravity of a General Violation—The Base Penalty of a General violation is determined by evaluating Severity (as provided in section 335(a)(1)(A) of this article). If the Severity is:

LOW— The Base Penalty shall be $1,000.
MEDIUM— The Base Penalty shall be $1,500.
HIGH— The Base Penalty shall be $2,000.

The Base Penalty for the General violation determined under this subsection is then subjected to an adjustment for Extent (as provided in section 335(a)(2) of this article). If the Extent is:

LOW— 25% of the Base Penalty shall be subtracted.
MEDIUM— No adjustment shall be made.
HIGH— 25% of the Base Penalty shall be added.

The Base Penalty for the General violation thus far determined is further subjected to an adjustment for Likelihood (as provided in section 335(a)(3) of this article). If Likelihood is:

LOW— 25% of the Base Penalty shall be subtracted.
MEDIUM— No adjustment shall be made.
HIGH— 25% of the Base Penalty shall be added.

The resulting figure is called the Gravity-based penalty.

(c) Serious Violation

(1) In General—Any employer who violates any occupational safety and health standard, order, or special order, and such violation is determined to be a Serious violation (as provided in section 334(c)(1) of this article) shall be assessed a civil penalty of up to $25,000 for each such violation. Because of the extreme gravity of a Serious violation an initial base penalty of $18,000 shall be assessed.

The Base Penalty for the Serious violation determined under this subsection is then subjected to an adjustment for Extent (as provided in section 335(a)(2) of this article). If the Extent is:

LOW— 25% of the Base Penalty shall be subtracted.
MEDIUM— No adjustment shall be made.
HIGH— 25% of the Base Penalty shall be added.

The Base Penalty for the Serious violation thus far determined is further subjected to an adjustment for Likelihood (as provided in section 335(a)(3) of this article). If Likelihood is:

LOW— 25% of the Base Penalty shall be subtracted.
MEDIUM— No adjustment shall be made.
HIGH— 25% of the Base Penalty shall be added.

The resulting figure is called the Gravity-based penalty.

(2) For Carcinogens—Any employer who violates any occupational safety and health standard, order, or special order respecting the use of a carcinogen, and such violation is determined to be a Serious violation (as provided in section 334(c)(4) of this article) shall be assessed a total civil penalty of $2000 for each such violation. This penalty is not subject to adjustment.

(3) Serious Violation Causing Death or Serious Injury, Illness or Exposure—If the employer commits a Serious violation and the Division has determined that the violation caused death or serious injury, illness or exposure as defined pursuant to Labor Code section 6302, the penalty shall not be reduced pursuant to this subsection, except the penalty may be reduced for Size as set forth in subsection (d)(1) of this section. The penalty shall not exceed $25,000.

(4) Operation of an Elevator in an Unsafe Condition or in Violation of an Order Prohibiting Use.

Any person owning or having custody, management or operation of an elevator who operates or permits the operation of the elevator in a condition which is dangerous to life or the safety of any person, or who operates or permits the operation of the elevator in violation of any Order Prohibiting Use issued by the Division, may be assessed a civil penalty pursuant to the provisions of this article of up to $2000.

(5) For Tower Cranes—Any employer who violates any tower crane standard, order or special order and such violation is determined to be a serious violation (as provided in section 334(c)(1) of this article) shall be assessed a penalty of $2,000. The penalty shall not be subject to adjustment as set forth in subsections (d) and (e) of this section.

(d) Further Adjustment of Regulatory, General, and Serious Violations—Subject to the provisions of parts (5) through (9) of this subsection, the Gravity-based Penalty established under either subsection (a), (b) or (c) of this section, shall be appropriately adjusted by giving due consideration to the following factors:

(1) The Size of the Business If the Size of the Business (as provided under section 335(b) of this article) is:

10 or fewer employees — 40% of the Gravity-based Penalty shall be subtracted.
11-25 employees — 30% of the Gravity-based Penalty shall be subtracted.
26-60 employees — 20% of the Gravity-based Penalty shall be subtracted.
61-100 employees — 10% of the Gravity-based Penalty shall be subtracted.
More than 100 employees — No adjustment shall be made.

(2) The Good Faith of the Employer—If the Good Faith of the Employer (as provided under section 335(c) of this article) is:

GOOD— 30% of the Gravity-based Penalty shall be subtracted.
FAIR— 15% of the Gravity-based Penalty shall be subtracted.
POOR— No adjustment shall be made.

(3) The History of Previous Violations—If the employer's History of Compliance (as provided under section 335(d) of this article) is:

GOOD— 10% of the Gravity-based Penalty shall be subtracted.
FAIR— 5% of the Gravity-based Penalty shall be subtracted.
POOR— No adjustment shall be made.

Following the preceding adjustments of the Gravity-based Penalty, the resultant penalty is termed Adjusted Penalty.

(4) If an employer cited for a violation of a safety and health provision within title 8 of the California Code of Regulations was, at the time of citation, making a good faith effort to abate the alleged violation, pursuant to written recommendations of a Consultant of the CAL/OSHA Consultation Service, the following penalty adjustments may apply:

(A) General Violation. All penalties assessed for such General violations may be waived by the Division.

(B) Serious Violation. All penalties for such Serious violations may be subject to an additional adjustment reducing the proposed penalty 50%.

(5) Serious Violations Respecting the Use of a Carcinogen—The penalty for any Serious violation respecting the use of a carcinogen as set forth in subsection (c)(2) of this section is not subject to adjustment pursuant to this subsection and shall not be otherwise reduced.

(6) Regulatory Violations of the Permit and Registration Requirements—The minimum penalty for any Regulatory violation of the permit or registration requirements as set forth in subsection (a)(4) of this section is $250.

(7) Serious Violations Causing Death or Serious Injury, Illness or Exposure—Subject to the provisions of subsection (c)(3) of this section, the penalty for any Serious violation determined by the Division to have caused death or serious injury, illness or exposure as defined pursuant to Labor Code section 6302, shall not be adjusted pursuant to this subsection, except for Size set forth in part (1) of this subsection.

(8) Injury Prevention Program—The penalty for any Serious violation shall not be subject to adjustment pursuant to this subsection other than for Size as set forth in part (1) of this subsection where the employer does not have an operative injury prevention program as set forth in Labor Code section 6401.7 and applicable regulations of the California Occupational Safety and Health Standards Board.

(9) False Declarations of Abatement—Subject to the provisions of subsection (e) of this section, where it is determined after reinspection that the employer has not complied with the abatement requirements of the Division and employer has previously submitted a statement affirm-

ing compliance therewith, the recomputed penalty shall not be adjusted pursuant to this subsection, except for Size as set forth in part (1) of this subsection.

(10) No civil penalty shall be assessed against any new employer for a period of one year after the date the new employer establishes a business in the state for a regulatory or general violation of the Injury and Illness Prevention Program Standard adopted pursuant to Labor Code section 6401.7 and applicable regulations of the California Occupational Safety and Health Standards Board, if the employer has made a good faith effort to comply with the requirement set forth therein.

(11) No civil penalty shall be assessed against an employer who adopts, posts, and implements in good faith the Model Injury and Illness Prevention Program for Non-High-Hazard Employment prepared by the Division for a first violation of the Injury and Illness Prevention Program standard adopted pursuant to Labor Code section 6401.7 and applicable regulations of the California Occupational Safety and Health Standards Board.

(12) For an employer who commits a repeat violation (as provided under section 334(d) of this article), the penalty shall not be subject to adjustment pursuant to this subsection, other than for Size as set forth in part (1) of this subsection.

(e) Abatement Credit for General and Serious Violations—The Adjusted Penalty for General and Serious violations is reduced by 50% on the presumption that the employer will correct the violations by the abatement date. The resultant penalty is termed Proposed Penalty. The following types of violations are not subject to an abatement credit:

(1) Violations designated as Repeat or Willful;

(2) Serious violations for which extent and likelihood are rated high;

(3) Serious violations respecting the use of a carcinogen; and

(4) Serious violation causing death or serious injury, illness or exposure as defined pursuant to Labor Code section 6302.

(f) Penalty for Failure to Abate Regulatory, General or Serious Violations—If the employer fails to abate the violation by the date permitted for its correction or fails to submit to the Division a signed statement of abatement of a violation within ten working days of the date set by the Division for correction of the violative condition, any abatement credit extended pursuant to subsection (e) of this Section shall be rescinded and this amount assessed as part of the failure to abate penalty. In addition, a penalty shall be assessed that is based upon the initial Gravity-based penalty for each calendar day that the previously cited violation continues unabated after expiration of the abatement period. Subject to the provisions of part (1) hereof, the Gravity-based penalty is reduced by the re-evaluated adjustment factors. The adjustment factors of Size, Good Faith, and History shall be determined by evaluation of the circumstances at the time of the subsequent inspection when the failure to abate is discovered. The daily additional penalty for failure to abate a violation shall not exceed $15,000.

Limitations:

(1) Except (A) where the gravity of the violation is high and exposure to employees is continuous, or (B) the employer has exhibited a high degree of negligence in failing to correct the violation, the daily penalty for failure to abate a Regulatory or General violation may be further reduced up to 90% for the first 120 days the violation continues to exist and up to 50% thereafter where the violation does not bear a direct relationship on employee health and safety. The daily penalty for a Serious violation may be reduced up to 50% where the adjustment factors calculated pursuant to subsection (c) of this section are Low and the History and Good Faith calculated pursuant to subsection (d) of this section are Good.

(2) When a violation consisted of a number of instances and upon subsequent inspection some instances are found to have been abated and others have not, the daily penalty shall be calculated in proportion to the extent that the violation has been abated.

(3) Failure to Abate a Serious Violation Causing Death or Serious Injury, Illness or Exposure—If the employer fails to abate a Serious violation and the Division has determined that the failure to abate caused death or serious injury, illness, or exposure as defined pursuant to Labor Code section 6302, the penalty shall not be adjusted pursuant to this subsection, except for Size as set forth in subsection (d)(1) of this section.

(4) Failure to Abate a Serious Violation of Crane Standard, Order, or Special Order Causing Death or Serious Injury—If the employer fails to abate a serious violation of a crane standard, order, or special order and the Division has determined that the failure to abate caused death or serious injury as defined pursuant to Labor Code 6302, the penalty shall be $14,000 for each calendar day. The penalty is not subject to adjustment.

(5) False Declaration of Abatement—If it is determined after reinspection that the employer has not complied with the abatement requirements of the Division, and the employer has previously submitted a statement affirming compliance therewith, the recomputed penalty shall not be adjusted pursuant to this subsection, except for Size pursuant to part (1) of subsection (d) of this section.

(g) Repeat Violation—

(1) In General—If a Regulatory, General, or Serious violation is repeated (as provided under section 334(d) of this article) the Proposed Penalty is adjusted upward as follows:

1st repeat— the Proposed Penalty is multiplied by two.

2nd repeat— the Proposed Penalty is multiplied by four.

3rd repeat— the Proposed Penalty is multiplied by ten.

The resultant penalty shall not exceed $70,000.

(2) For Carcinogens—If a Serious violation respecting the use of a carcinogen or a Regulatory violation concerning a reporting requirement respecting the use of a carcinogen is repeated (as provided in section 334(d) of this article), the total civil penalty shall be as follows:

(A) For repeated Regulatory violations concerning a reporting requirement.

1st repeat— $5,000

2nd repeat— $10,000

3rd repeat— $20,000

(B) For repeated Serious violations respecting the use of a carcinogen.

1st repeat— $10,000

2nd repeat— $20,000

3rd repeat— $40,000

These penalties are not subject to adjustment.

(3) Repeated Violation Causing Death or Serious Injury, Illness or Exposure—The computation of the Proposed Penalty for a repeated violation shall not be subject to reduction, other than the Size pursuant to part (1) of subsection (d) of this section, where the violation is determined by the Division to have caused death or serious injury, illness or exposure within the meaning of Labor Code section 6302.

(h) Willful Violation—If a Regulatory, General, or Serious violation is determined to be willful (as provided under section 334(e) of this article) the Proposed Penalty is adjusted upward as follows:

Regulatory, General and Serious—the Proposed Penalty is multiplied by five. However, the penalty for any willful violation shall not be less than $5,000 and shall not exceed $70,000.

(1) Willful Violation Causing Death or Serious Injury, Illness or Exposure—The computation of the Proposed Penalty for a willful violation shall not be subject to reduction, other than the Size pursuant to part (1) of subsection (d) of this section, where the violation is determined by the Division to have caused death or serious injury, illness or exposure within the meaning of Labor Code section 6302.

(i) Serious Repeated or Willful Repeated Violation of Crane Standard, Order, or Special Order Causing Death or Serious Injury—If the employer commits a serious repeated or willful repeated violation of a crane standard, order, or special order, and the Division has determined that the violation caused death or serious injury as defined pursuant to Labor Code 6302, the penalty shall be $140,000. This penalty is not subject to adjustment.

(j) Rounding of the Fractions Amounts of the civil penalties are rounded down to the next whole dollar during the calculation stages, and final figures are adjusted downward to the next lower five dollar ($5) value.

(k) Multiple Violations Pertaining To A Single Hazard. When a single hazard is the subject matter of multiple violations resulting in civil penalties, the Division may, in its discretion, depart from the preceding criteria to mitigate the cumulative effect of such penalties.

(l) This subsection does not apply to any penalty assessed for a Serious, Willful or Repeated violation or a failure to abate a Serious violation where such violation or violations have been determined by the Division to have caused death or serious injury, illness or exposure pursuant to Labor Code section 6302. This subsection does not apply to any Regulatory, General or Serious violation where the employer does not have an operative injury prevention program as set forth in subsection (d) of this section.

NOTE: Authority cited: Sections 54, 55, 6319, 6319.3, 6401.7 and 9060, Labor Code. Reference: Sections 6314.5, 6318, 6319, 6320, 6401.7, 6409.1, 6427–6432, 6434, 7320, 7321, 7321.5, 7381 and 9060, Labor Code.

HISTORY

1. Amendment and new subsection (j) filed 2–28–79; effective thirtieth day thereafter (Register 79, No. 9). For prior history, see Registers 75, No. 10; 77, No. 1; 77, No. 18 and 77, No. 27.
2. Editorial correction of subsection (d)(2) (Register 82, No. 15).
3. Amendment of subsections (c), (e)–(h) filed 12–31–84; designated effective 1–1–85 pursuant to Government Code section 11346.2(d) (Register 85, No. 1).
4. Amendment of subsections (c) and (g) filed 1–15–87; effective upon filing pursuant to Government Code section 11346.2(d) (Register 87, No. 3).
5. Amendment filed 3–18–91; operative 4–17–91 (Register 91, No. 15).
6. Amendment filed 4–24–92; operative 5–25–92 (Register 92, No. 18).
7. Amendment of subsection (d)(8), new subsections (d)(10) and (d)(11), and amendment of NOTE filed 1–26–95; operative 2–27–95 (Register 95, No. 4).
8. Amendment of subsections (c)(1)–(c)(3) and (c)(5), new subsection (d)(12), amendment of subsections (f) and (h), and amendment of NOTE filed 12–16–99 as an emergency; operative 1–1–2000 pursuant to Government Code section 11343.4(c) (Register 99, No. 51). A Certificate of Compliance must be transmitted to OAL by 5–1–2000 or emergency language will be repealed by operation of law on the following day.
9. Certificate of Compliance as to 12–16–99 order transmitted to OAL 4–13–2000 and filed 5–11–2000 (Register 2000, No. 19).
10. Change without regulatory effect amending subsection (a)(1), adopting new subsection (a)(6) and amending NOTE filed 1–30–2003 pursuant to section 100, title 1, California Code of Regulations (Register 2003, No. 5).

### § 336.1. Single Violation.

HISTORY

1. Repealer filed 3–7–75; effective thirtieth day thereafter (Register 75, No. 10).

## Article 4.5. Multi–Employer Worksites

### § 336.10. Determination of Citable Employer.

On multi–employer worksites, both construction and non–construction, citations may be issued only to the following categories of employers when the Division has evidence that an employee was exposed to a hazard in violation of any requirement enforceable by the Division:

(a) The employer whose employees were exposed to the hazard (the exposing employer);

(b) The employer who actually created the hazard (the creating employer);

(c) The employer who was responsible, by contract or through actual practice, for safety and health conditions on the worksite; i.e., the employer who had the authority for ensuring that the hazardous condition is corrected (the controlling employer); or

(d) The employer who had the responsibility for actually correcting the hazard (the correcting employer).

NOTE: The employers listed in subsections (b) through (d) may be cited regardless of whether their own employees were exposed to the hazard.

NOTE: Authority cited: Sections 54 and 55, Labor Code. Reference: Sections 50.7, 6317, 6400, 6401, 6402, 6403, 6404, 6405, 6406 and 6407, Labor Code.

HISTORY

1. New article 4.5 (sections 336.10–336.11) and section filed 12–1–97; operative 12–31–97 (Register 97, No. 49).

### § 336.11. Determination of Applicability of Defenses.

Prior to issuing any citation to an exposing employer, the Division shall first determine whether available information indicates that the employer meets each of the defenses listed below. If the Division concludes that all five defenses have been met, the citation shall not be issued. These defenses are:

(a) The employer did not create the hazard.

(b) The employer did not have the responsibility or the authority to have the hazard corrected.

(c) The employer did not have the ability to correct or remove the hazard.

(d) The employer can demonstrate that the creating, the controlling and/or the correction employers, as appropriate, were specifically notified or were aware of the hazards to which his/her employees were exposed.

(e) The employer took appropriate feasible steps to protect his/her employees from the hazard, instructed them to recognize the hazard and, where necessary, informed them how to avoid the dangers associated with it. For the purposes of this section, where an extreme hazard is involved, appropriate feasible steps include removing the employer's employees from the job, if there is no other way to protect them from the hazard.

NOTE: Authority cited: Sections 54 and 55, Labor Code. Reference: Sections 50.7, 6317, 6400, 6401, 6402, 6403, 6404, 6405, 6406 and 6407, Labor Code.

HISTORY

1. New section filed 12–1–97; operative 12–31–97 (Register 97, No. 49).

## Article 5. Hazardous Substances Information and Training

### § 337. Development and Maintenance of List.

(a) Establishment of Initial List. Substances designated in the sources specified in Labor Code section 6382(b) shall be considered in formulating the initial list.

The Director shall presume all such substances to be potentially hazardous to human health when present occupationally except those which the Director determines do not pose any adverse acute or chronic risk to human health as present occupationally. Those substances which do not pose any risk shall be removed from the list. Evidence of risk shall include any immediate or long–term adverse effect which causes impairment of function, alteration of structure, or increased susceptibility to disease or contributes to adverse effects of other substances. In making a determination of risk, the Director shall consider available scientific data including, but not limited to, data from human epidemiological studies,

[The next page is 23.]

data from short-term in vitro studies, and data from animal bioassay tests.

Animal bioassay data is admissible and generally indicative of potential effects in humans.

For purposes of this regulation, substances are present occupationally when there is a possibility of exposure either as a result of normal work operations or a reasonably foreseeable emergency resulting from workplace operations. A reasonably foreseeable emergency is one which a reasonable person should anticipate based on usual work conditions, a substance's particular chemical properties (e.g., potential for explosion, fire, reactivity), and the potential for human health hazards. A reasonably foreseeable emergency includes, but is not limited to, spills, fires, explosions, equipment failure, rupture of containers, or failure of control equipment which may or do result in a release of a hazardous substance into the workplace.

(b) Administrative Procedure Followed by the Director for the Development of the Initial List. The Director shall hold a public hearing concerning the initial list. The record will remain open 30 days after the public hearing for additional written comment. Requests to exempt a substance in a particular physical state, volume, or concentration from the provisions of Labor Code sections 6390 to 6399.2 may be made at this time. If no comments in opposition to such a request are made at the public hearing or received during the comment period, or if the Director can find no valid reason why the request should not be considered, it will be incorporated during the Director's preparation of the list.

After the public comment period the Director shall formulate the initial list and send it to the Standards Board for approval. After receipt of the list or a modified list from the Standards Board, the Director will adopt the list and file it with the Office of Administrative Law.

(c) Concentration Requirement. In determining whether the concentration requirement of a substance should be changed pursuant to Labor Code section 6383, the Director shall consider valid and substantial evidence. Valid and substantial evidence shall consist of clinical evidence or toxicological studies including, but not limited to, animal bioassay tests, short-term in vitro tests, and human epidemiological studies. Upon adoption, a regulation indicating the concentration requirement for a substance shall consist of a footnote on the list.

(d) Procedures for Modifying the List. The Director will consider petitions from any member of the public to modify the list or the concentration requirements, pursuant to the procedures specified in Government Code section 11347.1. With petitions to modify the list, the Director shall make any necessary deletions or additions in accordance with the procedures herein set forth for establishing the list. The Director will review the existing list at least every two years and shall make any necessary additions or deletions in accordance with the procedures herein set forth for establishing the list.

(e) Criteria for Modifying the List. Petitions to add or remove a substance on the list, modify the concentration level of a substance, or reference when a particular substance is present in a physical state which does not pose any human health risk must be accompanied with relevant and sufficient scientific data which may include, but is not limited to, short-term tests, animal studies, human epidemiological studies, and clinical data. If the applicant does not include the complete content of a referenced study or other document, there must be sufficient information to permit the Director to identify and obtain the referenced material. The petitioner bears the burden of justifying any proposed modification of the list.

The Director shall consider all evidence submitted, including negative and positive evidence. All evidence must be based on properly designed studies for toxicological endpoints indicating adverse health effects in humans, e.g., carcinogenicity, mutagenicity, neurotoxicity, organ damage/effects.

For purposes of this regulation, animal data is admissible and generally indicative of potential effects in humans.

The absence of a particular category of studies shall not be used to prove the absence of risk.

Negative results generally indicate the absence of statistically positive results in appropriate studies. As all tests for toxicological effects have inherent insensitivities, negative results must be reevaluated in light of the limits of sensitivity of each study, its test design, and the protocol followed.

In evaluating different results among proper tests, as a general rule, positive results shall be given more weight than negative results for purposes of including a substance on the list or modifying the list in reference to concentration, physical state or volume, so that appropriate information may be provided regarding those positive results. In each case, the relative sensitivity of each test shall be a factor in resolving such conflicts.

NOTE: Authority cited: Section 6380, Labor Code. Reference: Sections 6361, 6380, 6380.5, 6382 and 6383, Labor Code.

HISTORY

1. New article 5 (section 337) filed 11-5-81; effective thirtieth day thereafter (Register 81, No. 45).
2. Amendment of subsection (d) filed 1-15-87; effective upon filing pursuant to Government Code section 11346.2(d) (Register 87, No. 3).
3. Editorial correction of HISTORY 2. (Register 91, No. 19).

## § 338. Special Procedures for Supplementary Enforcement of State Plan Requirements Concerning Proposition 65.

(a) This section sets forth special procedures necessary to comply with the terms of the approval by the United States Department of Labor of the California Hazard Communication Standard, pertaining to the incorporation of the occupational applications of the California Safe Drinking and Toxic Enforcement Act (hereinafter Proposition 65), as set forth in 62 Federal Register 31159 (June 6, 1997). This approval specifically placed certain conditions on the enforcement of Proposition 65 with regard to occupational exposures, including that it does not apply to the conduct of manufacturers occurring outside the State of California. Any person proceeding "in the public interest" pursuant to Health and Safety Code § 25249.7(d) (hereinafter "Supplemental Enforcer") or any district attorney or city attorney or prosecutor pursuant to Health and Safety Code § 25249.7(c) (hereinafter "Public Prosecutor"), who alleges the existence of violations of Proposition 65, with respect to occupational exposures as incorporated into the California Hazard Communication Standard (hereinafter "Supplemental Enforcement Matter"), shall comply with the requirements of this section. No Supplemental Enforcement Matter shall proceed except in compliance with the requirements of this section.

(b) 22 CCR § 12903, setting forth specific requirements for the content and manner of service of sixty-day notices under Proposition 65, in effect on April 22, 1997, is adopted and incorporated by reference. In addition, any sixty-day notice concerning a Supplemental Enforcement Matter shall include the following statement:

"This notice alleges the violation of Proposition 65 with respect to occupational exposures governed by the California State Plan for Occupational Safety and Health. The State Plan incorporates the provisions of Proposition 65, as approved by Federal OSHA on June 6, 1997. This approval specifically placed certain conditions with regard to occupational exposures on Proposition 65, including that it does not apply to the conduct of manufacturers occurring outside the State of California. The approval also provides that an employer may use the means of compliance in the general hazard communication requirements to comply with Proposition 65. It also requires that supplemental enforcement is subject to the supervision of the California Occupational Safety and Health Administration. Accordingly, any settlement, civil complaint, or substantive court orders in this matter must be submitted to the Attorney General."

(c) A Supplemental Enforcer or Public Prosecutor who commences a Supplemental Enforcement Matter shall serve a file-endorsed copy of the complaint upon the Attorney General within ten days after filing with the Court.

(d) A Supplemental Enforcer or Public Prosecutor shall serve upon the Attorney General a copy of any motion, or opposition to a motion for

summary judgment or summary adjudication of issues, a demurrer, motion for preliminary or injunctive relief, or other dispositive motion, and all memoranda of points and authorities in support of or opposing such motions. These materials shall be served upon the Attorney General on the same day which they are served on the opposing party. A Supplemental Enforcer or Public Prosecutor shall serve upon the Attorney General any decision or order of a court granting or denying summary adjudication, a demurrer, preliminary or final injunctive relief, penalties, or damages relating to a Supplemental Enforcement Matter within five working days after receipt.

(e) A Supplemental Enforcer or Public Prosecutor who agrees to a settlement of a Supplemental Enforcement Matter shall serve the settlement upon the Attorney General within two working days after the agreement is signed by the parties. Where the settlement is submitted to a court for its approval, the Supplemental Enforcer or Public Prosecutor shall notify the court in writing upon presentation of the settlement of its submission to the Attorney General pursuant to this regulation. The submission to the Attorney General shall contain the entire agreement between the parties.

(f) When this section requires that any document or information be provided to the Attorney General, service shall be in a manner prescribed by Code of Civil Procedure § 1010 et seq. The envelope in which the document is transmitted shall state prominently "Hazard Communication Standard/Proposition 65 Supplemental Enforcement Matter." The Attorney General may then specify that further documents be served upon a particular office and deputy.

(g) The special procedures set forth in subsections (a) through (f) shall be followed for motions or other applications for judicial enforcement of any existing or future settlement agreements pertaining to Proposition 65, with reference to occupational exposures.

(h) Where, in the judgment of the Director and the Attorney General, a Supplemental Enforcer or Public Prosecutor has not complied with the provisions of this section, or the provisions of the OSHA approval decision of June 6, 1997, the Attorney General may seek to intervene in the action, or take such actions within his authority as he deems appropriate to assure compliance.

NOTE: Authority cited: Sections 54, 55 and 6380, Labor Code; and 62 Fed. Reg. 31159 (June 6, 1997). Reference: Sections 54, 55 and 6380, Labor Code; and 62 Fed. Reg. 31159 (June 6, 1997).

HISTORY

1. New section filed 10–12–2000; operative 10–12–2000 pursuant to Government Code section 11343.4(d) (Register 2000, No. 41).

## § 339. The Hazardous Substances List.

(a) Purpose. The following is the List of Hazardous Substances prepared by the Director pursuant to Labor Code Section 6380. The substances on this list are subject to the provisions of Labor Code Sections 6360 through 6399.7 and Section 5194 in Title 8 of the California Code of Regulations.

(b) Definitions.

(1) CAS number means the unique identification number assigned by the Chemical Abstracts Service to specific chemical substances.

(2) Source means the sublists which the Director used in preparing the Hazardous Substances List pursuant to Labor Code 6382. The source(s) of each hazardous substance on the list is designated by a number in the middle column of the list. The numbers represent the following sources: (1) International Agency for Research on Cancer (IARC); (2) Environmental Protection Agency lists pursuant to the Clean Air and Clean Water Acts; (3) General Industry Safety Order Section 5155; (4) California Department of Pesticide Regulation's list of Restricted Materials; (5) Information Alerts put out by the Hazard Evaluation and Information Service pursuant to Labor Code Section 147.2.

(3) Synonym means an entry in the list which refers to another entry. This type of entry may identify alternate names for a given substance or associate a particular substance with a class of substances. Synonyms appear in the list as entries of the form: Substance x; see Substance y. The synonym entries included in this list are not all inclusive.

HAZARDOUS SUBSTANCES LIST *

* An MSDS is not required for tapes, films, or extruded, molded or coated products containing listed hazardous substances in bound form except when these substances can be released in the workplace under normal conditions of work or in reasonably foreseeable emergencies resulting from workplace operations.

| *CAS No.* | *Source* | *Substance* | *Footnotes* |
|---|---|---|---|
| 26148685 | 1 | A-alpha-C (2-Amino-9H-pyrido[2,3-b]indole) | |
| 3688537 | 1 | AF-2 ([2-(2-Furyl)-3-(5-nitro-2-furyl)] acrylamide) | |
| 86884 | 3 | ANTU; see 1-(1-Naphthyl)-2-thiourea | |
| 83329 | 2 | Acenaphthene | |
| 75070 | 1,2,3 | Acetaldehyde | |
| 60355 | 1 | Acetamide | |
| 64197 | 2,3 | Acetic acid | 1 |
| 108247 | 2,3 | Acetic anhydride | |
| 67641 | 3 | Acetone | |
| 75865 | 2 | Acetone cyanohydrin | |
| 75058 | 3 | Acetonitrile | |
| 81812 | 3 | 3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin; see Warfarin | |
| 53963 | 3 | 2-Acetylaminofluorene | |
| 506967 | 2 | Acetyl bromide | |
| 79367 | 2 | Acetyl chloride | |
| 74862 | 3 | Acetylene | |
| 540590 | 2,3 | Acetylene dichloride | |
| 79276 | 3 | Acetylene tetrabromide | |
| 79345 | 1,3 | Acetylene tetrachloride | |
| 50782 | 3 | Acetylsalicylic acid | 37 |
| 107028 | 2,3,4 | Acrolein | |
| 79061 | 1,3 | Acrylamide | |
| 79107 | 3 | Acrylic acid | |
| 107131 | 1,2,3,4 | Acrylonitrile | |
| 50760 | 1 | Actinomycin D | |
| 124049 | 2 | Adlpic acid | |
| 23214928 | 1 | Adriamycin | |
| | 1 | Aflatoxins | |
| 116063 | 4 | Aldicarb | |
| 51285 | 2 | Aldifen; see Dinitrophenols | |
| 309002 | 1,2,3,4 | Aldrin | |
| 107186 | 2,3,4 | Allyl alcohol | |
| 107051 | 2,3 | Allyl chloride | |
| 106923 | 3 | Allyl glycidyl ether | 12 |
| 57067 | 1 | Allyl isothiocyanate | |
| 2835394 | 1 | Allyl isovalerate | |
| 2179591 | 3 | Allyl propyl disulfide | |
| | 3 | Aluminum | 3 |
| | 3 | Aluminum, alkyls | |
| 7429905 | 3 | Aluminum metal and oxide | |
| 20859738 | 4 | Aluminum phosphide | |
| | 3 | Aluminum pyro powders | |
| | 3 | Aluminum, soluble salts | 2 |
| 10043013 | 2 | Aluminum sulfate; see Aluminum, soluble salts | |
| 117793 | 1 | 2-Aminoanthraquinone | |
| 60093 | 1 | para-Aminoazobenzene | |
| 97563 | 1 | o-Aminoazotoluene | |
| 1300738 | 3 | Aminodimethylbenzene; see Xylidine | |
| 92671 | 1,3 | 4-Aminodiphenyl | 31 |
| 75047 | 2 | Aminoethane; see Ethylamine | |
| 141435 | 3 | 2-Aminoethanol; see Ethanolamine | |
| 82280 | 1 | 1-Amino-2-methylanthraquinone | |
| 91598 | 3 | 2-Aminonaphthalene; see beta-Naphthylamine | |
| 712685 | 1 | 2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole | |
| 121664 | 1 | 2-Amino-5-nitrothiazole | |
| 504290 | 3 | 2-Aminopyridine | |
| 504245 | 4 | 4-Aminopyridine | |
| 1918021 | 4 | 4-Amino-3,5,6-trichloropicolinic acid; see Picloram | |
| 2432997 | 1 | 11-Aminoundecanoic acid | |
| 61825 | 1,3 | Amitrole | |
| 7773060 | 2 | Ammate; see Ammonium sulfamate | |
| 7664417 | 2,3 | Ammonia | |
| 631618 | 2 | Ammonium acetate | |
| 1863634 | 2 | Ammonium benzoate | |
| 1066337 | 2 | Ammonium bicarbonate | |
| 7789095 | 2 | Ammonium bichromate; see Chromium compounds | |
| 1341497 | 2 | Ammonium bifluoride; see Flouride and inorganic fluoride compounds | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 10192300 | 2 | Ammonium bisulfite | |
| 1111780 | 2 | Ammonium carbamate | |
| 506876 | 2 | Ammonium carbonate | |
| 3012655 | 2 | Ammonium citrate dibasic | |
| 12125029 | 2,3 | Ammonium chloride fume | |
| 7788989 | 2 | Ammonium chromate; see Chromium compounds | |
| 13826830 | 2 | Ammonium fluoborate | |
| 12125018 | 2 | Ammonium fluoride; see Fluoride, and inorganic fluoride compounds | |
| 1336216 | 2 | Ammonium hydroxide | 29 |
| 6009707 | 2 | Ammonium oxalate | |
| 16919190 | 2 | Ammonium silicofluoride | |
| 7773060 | 2,3 | Ammonium sulfamate | |
| 12135761 | 2 | Ammonium sulfide | |
| 10196040 | 2 | Ammonium sulfite | |
| 3164292 | 2 | Ammonium tartrate | |
| 1762954 | 2 | Ammonium thiocyanate | |
| 628637, 123922, 626380, 625161 | 2,3 | Amyl acetate, all isomers | |
| | 1 | Anabolic steroids (Androgenic steroids) | |
| 62533 | 1,2,3 | Aniline | |
| 90040 | 1,3 | o-Anisidine | |
| 104949 | 3 | p-Anisidine | |
| 191264 | 1 | Anthanthrene | |
| 120127 | 2 | Anthracene | |
| 7440360 | 2,3 | Antimony | 3 |
| | 2,3 | Antimony compounds | 4 |
| 7647189 | 2 | Antimony pentachloride; see Antimony compounds | |
| 28300745 | 2 | Antimony potassium tartrate; see Antimony compounds | |
| 7789619 | 2 | Antimony tribromide; see Antimony compounds | |
| 10025919 | 2 | Antimony trichloride; see Antimony compounds | |
| 77883564 | 2 | Antimony trifluoride; see Antimony compounds | |
| 1309644 | 2 | Antimony trioxide | |
| 140578 | 1 | Aramite®; see 2-(p-tert-Butyphenoxy)isopropyl-2-chloroethyl sulfite) | |
| 7440382 | 1,2,3,4 | Arsenic and arsenic compounds | 32 |
| 1303328 | 2 | Arsenic disulfide; see Arsenic and arsenic compounds | |
| 1303282 | 1,2 | Arsenic pentoxide; see Arsenic and arsenic compounds | |
| 1327533 | 1,2 | Arsenic trioxide; see Arsenic and arsenic compounds | |
| 1303339 | 1,2 | Arsenic trisulfide; see Arsenic and arsenic compounds | |
| 784421 | 3 | Arsine | |
| 1332214 | 1,2,3 | Asbestos | 5 |
| 8052424 | 3 | Asphalt (petroleum) fumes | 6 |
| 50782 | 3 | Aspirin; see Acetylsalicylic acid | |
| 1912249 | 1,3,4 | Atrazine | |
| 12174117 | 1 | Attapulgite | |
| 492808 | 1 | Auramine | |
| 12192573 | 1 | Aurothioglucose | |
| 320672 | 1 | 5-Azacytidine | |
| 115026 | 1 | Azaserine | |
| 446866 | 1 | Azathioprine | |
| 86500 | 2,3,4 | Azinphos methyl; see O,O-Dimethyl S-(4-oxo-benzotri-azino-3-methyl) phosphorodithioate | |
| 151564 | 1 | Aziridine; see Ethyleneimine | |
| 1072522 | 1 | 2-(1-Aziridinyl)ethanol | |
| 800248 | 1 | Aziridyl benzoquinone | |
| 103333 | 1 | Azobenzene | |
| 3333526 | 3 | 2,2′-Azobisisobutyronitrile decomposition product; see Tetramethyl succinonitrile | |
| 6923224 | 4 | Azodrin; see 3-(Dimethoxyphosphinyloxy)-N-methyl-cis-crotonamide | |
| 154938 | 1 | BCNU; see 1,3-bis (2-Chloroethyl)-1-nitrosourea | |
| 2426086 | 3 | BGE; see n-Butyl glycidyl ether | |
| 58899 | 2 | BHC; see Hexachlorocyclohexanes | |
| 319846 | 2 | alpha-BHC | |
| 319857 | 2 | beta-BHC | |
| 319869 | 2 | delta-BHC | |
| 58899 | 2 | gamma-BHC; see Lindane | |
| 86884 | 3 | Bantu; see 1-(1-Naphthyl)-2-thiourea | |
| 101279 | 2 | Barban | |
| | 2,3 | Barium, soluble compounds | 2 |
| 542621 | 2 | Barium cyanide; see Cyanides, inorganic salts | |
| 17804352 | 3 | Benomyl | |
| 25057890 | 4 | Bentazon | |
| 225514 | 1 | Benz[c]acridine | |
| 56553 | 1,2 | Benz [a]anthracene | |
| 56553 | 2 | 1,2-Benzanthracene; see Benz[a]anthracene | |
| 71432 | 1,2,3 | Benzene | |

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| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 108907 | 2,3 | Benzene chloride; see Chlorinated benzenes | |
| 123319 | 3 | 1,4–Benzenediol; see Hydroquinone | |
| 108463 | 2 | 1,3–Benzenediol; see Resorcinol | |
| 118741 | 1,4 | Benzene hexachloride; see Chlorinated benzenes | |
| 531851, 531862, 92875 | 1,2,3 | Benzidine (and its salts) | 31 |
| | 1 | Benzidine–based dyes | |
| 205992 | 1,2 | Benzo [b]fluoranthene | |
| 205823 | 1 | Benzo[j]fluoranthene | |
| 207089 | 1,2 | Benzo[k]fluoranthene | |
| 207089 | 2 | 11,12 Benzofluoranthene; see Benzo[k]fluoranthene | |
| 205992 | 2 | 3,4 Benzofluoranthene; see Benzo[b]fluoranthene | |
| 65850 | 2 | Benzoic Acid | 7 |
| 71432 | 3 | Benzol; see Benzene | |
| 100470 | 2 | Benzonitrile | |
| 191242 | 2 | 1,12–Benzoperylene | |
| 191242 | 2 | Benzo(ghi)perylene; see 1,12–Benzoperylene | |
| 50328 | 1,2 | Benzo [a]pyrene | |
| 91225 | 2 | Benzo(b)pyridine; see Quinoline | |
| 105113 | 1 | para–Benzoquinone dioxime | |
| 106514 | 3 | p–Benzoquinone; see Quinone | |
| 98077 | 1 | Benzotrichloride | |
| 98884 | 2 | Benzoyl chloride | |
| 94360 | 3 | Benzoyl peroxide | |
| 140114 | 1 | Benzyl acetate | |
| 100447 | 1,2,3 | Benzyl chloride | |
| 1694093 | 1 | Benzyl violet 4B | |
| 7440417 | 1,2,3 | Beryllium | 34 |
| 7787475 | 1,2 | Berrylium chloride; see Beryllium compounds | |
| | 1,2,3 | Beryllium compounds | |
| 7787497 | 1,2 | Beryllium fluoride; see Beryllium compounds | |
| 7787555 | 2 | Beryllium nitrate; see Beryllium compounds | |
| 141662 | 4 | Bidrin; see 3–Hydroxy–N,N–dimethyl–cis–crotonamide dimethyl phosphate | |
| 92524 | 3 | Biphenyl | |
| 2168685 | 1 | Bis(1–aziridinyl)morpholinophosphine sulphide | |
| 111911 | 2 | Bis(2–chloroethoxy) methane | |
| 111444 | 2,3 | Bis(2–chloroethyl)ether; see Chloroalkyl ethers | |
| 494031 | 1 | N,N–Bis(2–chloroethyl)–2 –naphthylamine | |
| 154938 | 1 | 1,3–Bis(2–chloroethyl)–1 –nitrosourea | |
| 154938 | 1 | Bischloroethyl nitrosourea; see 1,3–Bis(2–chloroethyl)–1–nitrosourea | |
| 13483186 | 1 | 1,2–Bis(chloromethoxy)ethane | |
| 56894981 | 1 | 1,4–Bis(chloromethoxymethyl)benzene | |
| 542881 | 1,3 | Bis(chloromethyl) ether | |
| 108601 | 1 | Bis(2–chloro–1–methylethyl) ether | |
| 108601 | 2 | Bis(2–chloroisopropyl) ether | |
| 115322 | 1,2 | 1,1–Bis–(p–chlorophenyl)–2,2,2–trichloroethanol(dicofol) | |
| 137268 | 3 | Bis–(dimethylthiocarbamoyl) disulfide | |
| 2238075 | 3 | Bis(2,3–epoxypropyl)ether; see Diglycidyl ether | |
| 117817 | 2 | Bis(2–ethylhexyl) phthalate; see Phthalate esters | |
| 1304821 | 3 | Bismuth telluride; see Tellurium compounds | |
| 11056067 | 1 | Bleomycins | |
| 129179 | 1 | Blue VRS | |
| | 3 | Borates, tetra, sodium salts | 8 |
| 1303862 | 3 | Boron oxide | 8 |
| 10294334 | 3 | Boron tribromide | |
| 7637072 | 3 | Boron trifluoride | |
| 3844459 | 1 | Brilliant Blue FCF | |
| 314409 | 3 | Bromacil | |
| 7726956 | 3 | Bromine | |
| 7789302 | 3 | Bromine pentafluoride | |
| 74975 | 3 | Bromochloromethane | |
| 75274 | 2 | Bromodichloromethane | |
| 74964 | 3 | Bromoethane; see Ethyl bromide | |
| 593602 | 3 | Bromoethylene; see Vinyl bromide | |
| 75252 | 2,3 | Bromoform | |
| 74839 | 3 | Bromomethane; see Methyl bromide | |
| 101553 | 2 | 4–Bromophenyl phenyl ether | |
| 75638 | 3 | Bromotrifluoromethane | |
| 1689845 | 4 | Bromoxynil | |
| 106990 | 1,2,3 | 1,3–Butadiene | |
| 106978 | 3 | Butane | |
| 55981 | 1 | 1,4–Butanediol dimethanesulfonate (Busulfan) | |
| 109795 | 3 | Butanethiol; see n–Butyl mercaptan | |
| 71363 | 3 | Butanol; see Butyl alcohol | |
| 78933 | 3 | 2–Butanone | |
| 123739 | 2 | 2–Butenal propylene aldehyde; see Crotonaldehyde | |
| 2426086 | 3 | 1–Butoxy–2,3–epoxypropane; see n–Butyl glycidyl ether | |
| 111762 | 3 | 2–Butoxyethanol; see Ethylene glycol monobutyl ether | |
| 123864, 105464, 540885, 110190 | 2,3 | Butyl acetate, all isomers | |
| 141322 | 3 | Butyl acrylate | |
| 71363, 78922, 75650 | 3 | Butyl alcohol | |
| 109739, 78819, 513495, 13952846, 75649 | 2,3 | Butylamine, all isomers | |
| 25013165 | 1 | Butylated hydroxyanisole | |
| 128370 | 1 | Butylated hydroxytoluene; see 2,6–Di–tert–butyl–p–cresol | |
| 85687 | 2 | Butyl benzyl phthalate | |
| 299865 | 3 | 4–tert–Butyl–2–chlorophenylmethyl methylphosphoramidate | |
| 1189851 | 3 | tert–Butyl chromate; see Chromium compounds | |
| 2426086 | 3 | n–Butyl glycidyl ether | 12 |
| 138227 | 3 | n–Butyl lactate | |
| 109795 | 3 | n–Butyl mercaptan | |
| 89725 | 3 | o–sec–Butylphenol | |
| 140578 | 1 | 2–(p–tert–Butylphenoxy)isopropyl–2–chloroethyl sulfite | |
| 84742 | 2 | n–Butyl phthalate; see Phthalate esters | |
| 98511 | 3 | p–tert–Butyltoluene | |
| 107926 | 2 | Butyric acid | |
| 3068880 | 1 | beta–Butyrolactone | |
| 13010474 | 1 | CCNU; see 1–(2–Chloroethyl)–3–cyclohexyl–1–nitrosourea | |
| 543908 | 1,2 | Cadmium acetate; see Cadmium compounds | |
| 7440439, 1306190 | 1,2,3,4 | Cadmium and cadmium oxide | 3 |
| 7789426 | 2 | Cadmium bromide; see Cadmium compounds | |
| 10108642 | 1,2 | Cadmium chloride; see Cadmium compunds | |
| | 1,2,3,4 | Cadmium compounds | |
| 7440702 | 2 | Calcium | |
| 7778441 | 1,2,3 | Calcium arsenate; see Arsenic and arsenic compounds | |
| 52740166 | 2 | Calcium arsenite; see Arsenic and arsenic compounds | |
| 75207 | 2 | Calcium carbide | |
| 13765190 | 1,2 | Calcium chromate; see Chromium compounds | |
| 156627 | 3 | Calcium cyanamide | |
| 592018 | 2,4 | Calcium cyanide; see Cyanides, inorganic salts | |
| 26264062 | 2 | Calcium dodecylbenzene–sulfonate | 9 |
| 1305620 | 3 | Calcium hydroxide | |
| 7778543 | 2 | Calcium hypochlorite | |
| 1305788 | 3 | Calcium oxide | |
| 76222 | 3 | Camphor | |
| 56257 | 1 | Cantharidin | |
| 105602 | 3 | Caprolactam | |
| 2425061 | 1,3 | Captafol | |
| 133062 | 1,2,3 | Captan | |
| 63252 | 2,3,4 | Carbaryl | |
| 86748 | 1 | Carbazole | |
| 7786347 | 2,3,4 | alpha–2–Carbomethoxy–1– methylvinyl dimethyl phosphate(mevinphos) | |
| 7786347 | 3 | 2–Carbomethoxy–1–propen–2–yl dimethyl phosphate; see alpha–2–Carbomethoxy–1–methylvinyl dimethyl phosphate | |
| 75150 | 2,4 | Carbon bisulfide; see Carbon disulfide | |
| 1333864 | 1,3 | Carbon black–Extracts | 10 |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 124389 | 3 | Carbon dioxide | |
| 75150 | 2,3,4 | Carbon disulfide | |
| 630080 | 3 | Carbon monoxide | |
| 558134 | 3 | Carbon tetrabromide | |
| 56235 | 1,2,3,4 | Carbon tetrachloride | |
| 75445 | 2,3 | Carbonyl chloride; see Phosgene | |
| 353504 | 3 | Carbonyl Fluoride | |
| 786196 | 4 | Carbophenothion | |
| 154938 | 1 | Carmoisine; see 1,3-Bis(2-chloro-ethyl)-1-nitrosourea | |
| 120809 | 3 | Catechol | |
| 1310732 | 3 | Caustic soda; see Sodium hydroxide | |
| 110805 | 5 | Cellosolve; see Ethylene glycol mono-ethyl ether | |
| 21351791 | 3 | Cesium hydroxide | |
| 305033 | 1 | Chlorambucil | |
| 56757 | 1 | Chloramphenicol | |
| 57749 | 1,2,3,4 | Chlordane | |
| 143500 | 1,2 | Chlordecone | |
| 6164983 | 4 | Chlordimeform | |
| 115286 | 1 | Chlorendic acid | |
| 470906 | 4 | Chlorfenvinphos | |
| | 1,2,3 | Chlorinated benzenes | |
| 8001352 | 3 | Chlorinated camphene; see Toxaphene | |
| | 2 | Chlorinated cresols | |
| 55720995 | 3 | Chlorinated diphenyl oxide | |
| | 2 | Chlorinated ethanes | |
| | 2 | Chlorinated naphthalenes, (other than those listed elsewhere) | |
| 108171262 | 1 | Chlorinated paraffins | |
| | 2 | Chlorinated phenols; see Chlorinated cresols | |
| | 1 | a-Chlorinated toluenes | |
| 7782505 | 2,3 | Chlorine | |
| 10049044 | 3 | Chlorine dioxide | |
| 7790912 | 3 | Chlorine trifluoride | |
| 494031 | 1 | Chlornaphazine; see N,N-bis(2-Chloroethyl)-2-naphthylamine | |
| 107200 | 3 | Chloroacetaldehyde | |
| 532274 | 3 | alpha-Chloroacetophenone | |
| 79049 | 3 | Chloroacetyl chloride | |
| | 1,2,3 | Chloroalkyl ethers | |
| 108907 | 2,3 | Chlorobenzene; see Chlorinated benzenes | |
| 510156 | 1 | Chlorobenzilate | |
| 2698411 | 3 | o-Chlorobenzylidene-malononitrile | |
| 74975 | 3 | Chlorobromomethane; see Bromochloromethane | |
| 126998 | 3 | 2-Chloro-1,3-butadiene; see Chloroprene | |
| 124481 | 2 | Chlorodibromomethane | |
| 75456 | 1,3 | Chlorodifluoromethane (FC-22) | |
| 53449219 | 3 | Chlorodiphenyl; see Polychlorobiphenyls | |
| 106898 | 3 | 1-Chloro-2,3,-epoxypropane; see Epichlorohydrin | |
| 75003 | 2,3 | Chloroethane; see Ethyl chloride | |
| 107073 | 3 | 2-Chloroethanol; see Ethylene chlorohydrin | |
| 13010474 | 1 | 1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea | |
| 75014 | 3 | Chloroethylene; see Vinyl chloride | |
| 13909096 | 1 | 1-(2-Chloroethyl)-3-(4-methycyclo-hexyl)-1-nitrosourea (Methyl -CCNU) | |
| 110758 | 2 | 2-Chloroethyl vinyl ether | |
| 593704 | 1 | Chlorofluoromethane | |
| 67663 | 1,2,3 | Chloroform | |
| 75445 | 2 | Chloroformyl chloride; see Phosgene | |
| 59507 | 2 | para-Chloro-meta-cresol | |
| 74873 | 3 | Chloromethane; see Methyl chloride | |
| 107302 | 3 | Chloromethyl methyl ether; see Methyl chloromethyl ether | |
| 91587 | 2 | 2-Chloronaphthalene | |
| 100005 | 3 | 1-Chloro-4-nitrobenzene; see p-Nitrochlorobenzene | |
| 600259 | 3 | 1-Chloro-1-nitropropane | |
| 76153 | 3 | Chloropentafluoroethane | |
| 95578 | 2 | 2-Chlorophenol; see Chlorophenols | |
| | 1 | Chlorophenols | |
| | 1 | Chlorophenoxy herbicides | |
| 95830 | 1 | 4-Chloro-o-phenylenediamine | |
| 7005723 | 2 | 4-Chlorophenyl phenyl ether | |
| 76062 | 3,4 | Chloropicrin | |
| 126998 | 2,3 | Chloroprene | |
| 1331288 | 3 | o-Chlorostyrene | |
| 7790945 | 2 | Chlorosulfonic acid | |
| 1897456 | 1 | Chlorothalonil | |
| 95498 | 3 | o-Chlorotoluene | |
| 100447 | 3 | alpha-Chlorotoluene; see Benzyl chloride | |
| 95692 | 1 | p-Chloro-o-toluidine | |
| 7745893 | 4 | 3-Chloro-p-toluidine hydrochloride | |
| 1929824 | 3 | 2-Chloro-6-(trichloromethyl) pyridine | |
| 75887 | 1 | 2-Chloro-1,1,1-trifluoroethane | |
| 2921882 | 2,3 | Chlorpyrifos | |
| 1066304 | 2 | Chromic acetate; see Chromium compounds | |
| 11115745 | 2 | Chromic acid; see Chromium compounds | |
| 10101538 | 2 | Chromic sulfate; see Chromium compounds | |
| 7440473 | 2,3 | Chromium | 3 |
| | 1,2,3 | Chromium compounds | |
| 7440473 | 3 | Chromium metal; see Chromium | |
| 11115745 | 2 | Chromium troixide; see Chromium compounds | |
| 10049055 | 2 | Chromous chloride; see Chromium compounds | |
| 14977618 | 3 | Chromyl chloride; | |
| 218019 | 1,2 | Chrysenes; see Polynuclear aromatic hydrocarbons | |
| 532821 | 1 | Chrysoidine | |
| 87296 | 1 | Cinnamyl anthranilate | |
| 108316 | 2,3 | Cis-butenedioic anhydride; see Maleic anhydride | |
| 15663271 | 1 | Cisplatin | |
| 51875 | 1 | Citrinin | |
| 6358538 | 1 | Citrus Red no. 2 | |
| 637070 | 1 | Clofibrate | |
| 1420048 | 4 | Clonitralid | |
| 2971906 | 3 | Clopidol | |
| | 3 | Coal (Bituminous) dust | |
| 65996932 | 1 | Coal-tar pitches | |
| 8007452 | 1,3 | Coal tar pitch volatiles | 11 |
| 7440484 | 2,3 | Cobalt | 3,34 |
| 10210681 | 3 | Cobalt carbonyl | |
| 16842038 | 3 | Cobalt hydrocarbonyl | |
| 7789437 | 2 | Cobaltous bromide | |
| 544183 | 2 | Cobaltous formate | |
| 14017415 | 2 | Cobaltous sulfamate | |
| 62748 | 4 | Compound 1080; see Sodium fluoroacetate | |
| 7440508 | 2,3 | Copper | 3 |
| | 2,3 | Copper compounds | 39 |
| | 3 | Cotton dust | 27 |
| 56724 | 2 | Coumaphos | |
| 91645 | 1 | Coumarin | |
| 8001589 | 1 | Creosotes | |
| 120718 | 1 | p-Cresidine | |
| 95487, 106445, 108394,1319773 | 2,3 | Cresol (all isomers) | |
| 123739 | 2,3 | Crotonaldehyde | |
| 299865 | 3 | Crufomate; see 4-tert-Butyl (-2-chlor-ophenylmethyl) methylphos-phoramidate | |
| 98828 | 3 | Cumene | |
| 142712 | 2 | Cupric acetate; see Copper compounds | |
| 12002038 | 2 | Cupric acetoarsenite; see Copper compounds | |
| 7447394 | 2 | Cupric chloride; see Copper compounds | |
| 3251238 | 2 | Cupric nitrate; see Copper compounds | |
| 5893663 | 2 | Cupric oxalate; see Copper compounds | |
| 10380297 | 2 | Cupric sulfate, ammoniated; see Copper compounds | |
| 7758987 | 2 | Cupric sulfate; see Copper compounds | |
| 815827 | 2 | Cupric tartrate; see Copper compounds | |
| 420042 | 3 | Cyanamide | |
| | 2,3,4 | Cyanides, inorganic salts | |
| 100470 | 2 | Cyanobenzene; see Benzonitrile | |
| 460195 | 3 | Cyanogen | |
| 506774 | 2,3 | Cyanogen chloride | |
| 14901087 | 1 | Cycasin | |
| | 1 | Cyclamates | |
| 110827 | 2,3 | Cyclohexane | |
| 108930 | 3 | Cyclohexanol | |
| 108941 | 3 | Cyclohexanone | |
| 110838 | 3 | Cyclohexene | |
| 66819 | 4,5 | Cycloheximide | |
| 108918 | 3 | Cyclohexylamine | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 121824 | 3 | Cyclonite; see Cyclotrimethylenetrinitramine | |
| 542927 | 3 | Cyclopentadiene | |
| 12079651 | 3 | Cyclopentadienyltriocarbonyl manganese; see Manganese compounds | |
| 287923 | 3 | Cyclopentane | |
| 27208373 | 1 | Cyclopenta[c,d]pyrene | |
| 50180 | 1 | Cyclophosphamide | |
| 6055192 | | | |
| 121824 | 3 | Cyclotrimethylene-trinitramine | |
| 13121705 | 3 | Cyhexatin; see Tin compounds | |
| 94757 | 2,3,4 | 2,4-D | |
| 94111, 94791, 94804, 1320189, 1928387, 1928616, 1929733, 2971382, 25168267, 53467111 | 2 | 2,4-D esters (2,4-dichloro-phenoxyacetic acid esters) | |
| 94826 | 4 | 2,4-DB (2,4-dichloro- phenoxybutyric acid) | |
| 72548 | 2,4 | DDD; see TDE | |
| 72548 | 2 | 4,4-DDD; see TDE | |
| 72559 | 2 | DDE; see 1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethylene | |
| 72559 | 2 | 4,4-DDE; see 1,1-Dichloro-2,2-bis(p-chlorophenyl)-ethylene | |
| 120365 | 4 | 2,4-DP (2,4-dichlorophenoxy-propionic acid) | |
| 50293 | 1,2,3,4 | DDT-(1,1,1-trichloro-2,2-bis (p-chlorophenyl)ethane) | |
| 50293 | 2 | 4,4-DDT; see DDT | |
| 62737 | 3 | DDVP; see Dichlorvos | |
| 78488 | 4 | DEF; see S,S,S Tributyl phosphorotrithioate | |
| 2238075 | 3 | DGE; see Diglycidyl ether | |
| 68122 | 3 | DMF; see N,N-Dimethylformamide | |
| 57147 | 3 | DMH; see Dimethylhydrazine (all isomers) | |
| 81889 | 1 | D&C Red No. 19; see Rhodamine B | |
| 432034 | 1 | Dacarbazine | |
| 80080 | 1 | Dapsone | |
| 115902 | 4 | Dasanit; see O,O-Diethyl O-[4-(methylsulfinyl) phenyl] phosphorothioate | |
| 20830813 | 1 | Daunomycin | |
| 17702419 | 3 | Decaborane | |
| 8065483 | 3,4 | Demeton | |
| 298033 | 2 | Demeton-O | |
| 126750 | 2 | Demeton-S | |
| 123422 | 3 | Diacetone alcohol; see 4-Hydroxy-4-methyl-2-pentanone | |
| 613354 | 1 | N,N′-Diacetylbenzidine | |
| 10311849 | 4 | Dialifor | |
| 2303164 | 1 | Diallate | |
| 615054 | 1 | 2,4-Diaminoanisole | |
| 39156417 | 1 | 2,4-Diaminoanisole sulfate | |
| 92875 | 3 | 4,4′-Diaminobiphenyl; see Benzidine (and its salts) | |
| 91941 | 3 | 4,4′ Diamino-3,3′-dichlorobiphenyl; see Dichlorobenzidine and its salts | |
| 101814 | 1 | 4,4′-Diaminodiphenyl ether | |
| 107153 | 2,3 | 1,2-Diaminoethane; see Ethylenediamine | |
| 95807 | 1 | 2,4-Diaminotoluene | |
| 119904 | 1 | ortho-Dianisidine; see 3,3-Dimethoxy-benzidine | |
| 333415 | 2,3 | Diazinon | |
| 334883 | 1,3 | Diazomethane | |
| 226368 | 1 | Dibenz [a,h]acridine | |
| 224420 | 1 | Dibenz [a,j]acridine | |
| 53703 | 1,2 | Dibenz [a,h]anthracene | |
| 215587 | 1 | Dibenz[a,c]anthracene | |
| 224419 | 1 | Dibenz[a,j]anthracene | |
| 53703 | 2 | 1,2,5,6-Dibenzanthracene; see Dibenz[a,h] anthracene | |
| | 1,2 | Dibenzanthracenes; see Polynuclear aromatic hydrocarbons | |
| 194592 | 1 | 7H-Dibenzo [c,g]carbazole | |
| 5385751 | 1 | Dibenzo[a,e]fluoranthene | |
| 192472 | 1 | Dibenzo[h,rst]pentaphene | |
| 192654 | 1 | Dibenzo [a,e]pyrene | |
| 189640 | 1 | Dibenzo [a,h]pyrene | |
| 189559 | 1 | Dibenzo [a,i]pyrene | |
| 191300 | 1 | Dibenzo[a,l]pyrene | |
| 92842 | 3 | Dibenzothiazine; see Phenothiazine | |
| 94360 | 3 | Dibenzoyl Perozide; see Benzoyl peroxide | |
| 19287457 | 3 | Diborane | |
| 300765 | 2 | Dibrom; see O,O-Dimethyl O-(1,2-dibromo-2,2-dichloroethyl) phosphate | |
| 96128 | 1,3 | 1,2-Dibromo-3-chloropropane | |
| 75616 | 3 | Dibromodifluoromethane | |
| 106934 | 2,3 | 1,2-Dibromoethane; see Ethylene dibromide | |
| 102818 | 3 | 2-(Dibutylamino) ethanol | |
| 128370 | 1,3 | 2,6-Di-tert-butyl-p-cresol | 7 |
| 107664 | 3 | Dibutyl phosphate | |
| 84742 | 3 | Dibutyl phthalate; see Phthalate esters | |
| 84742 | 2 | Di-n-butyl phthalate; see Phthaltate esters | |
| 1918009 | 2,4 | Dicamba | |
| 1194656 | 2 | Dichlobenil | |
| 117806 | 2 | Dichlone | |
| 7572294 | 1,3 | Dichloroacetylene | |
| 541731 | 2 | m-Dichlorobenzene | |
| 106467 | 1,2,3 | p-Dichlorobenzene | |
| 95501 | 2,3 | o-Dichlorobenzene | |
| 95501 | 2 | 1,2-Dichlorobenzene; see o-Dichlorobenzene | |
| 541731 | 2 | 1,3-Dichlorobenzene; see m-Dichlorobenzene | |
| 106467 | 2 | 1,4-Dichlorobenzene; see p-Dichlorobenzene | |
| 225321226 | 1,2,3 | Dichlorobenzenes; see Chlorinated benzenes | |
| | 1,2,3 | Dichlorobenzidine (and its salts) | |
| 91941 | 1,2,3 | 3,3′-Dichlorobenzidine; see Dichlorobenzidene (and its salts) | |
| 72548 | 2 | 1,1-Dichloro-2,2-bis(p-chlorophenyl) ethane; see TDE | |
| 72559 | 2,4 | 1,1-Dichloro-2,2-bis (p-chlorophenyl) ethylene | |
| 75274 | 2 | Dichlorobromomethane; see Bromodichloromethane | |
| 28434868 | 1 | 3,3′-Dichloro-4,4′-diaminodiphenyl ether | |
| 75718 | 3 | Dichlorodifluoromethane (FC-12) | |
| 118525 | 3 | 1,3-Dichloro-5,5-dimethyl-hydantoin | |
| 107062 | 1,2 | 1,2-Dichloroethane; see Ethylene dichloride | |
| 75343 | 2,3 | 1,1-Dichloroethane; see Ethylidene chloride | |
| 156605 | 2 | 1,2-trans-Dichloroethylene | |
| 540590 | 2,3 | 1,2-Dichloroethylene; see Acetylene dichloride | |
| 75354 | 2,3 | 1,1 Dichloroethylene; see Vinylidene chloride | |
| 111444 | ,1,3 | Dichloroethyl ether; see Chloroaikyl ethers | |
| 75092 | 3 | Dichloromethane; see Methylene chloride | |
| 75434 | 3 | Dichloromonofluoromethane (FC-21) | |
| 117806 | 2 | Dichloronaphthoquinone; see Dichlone | |
| 594729 | 3 | 1,1-Dichloro-1-nitroethane | |
| 120832 | 2 | 2,4-Dichlorophenol | |
| 94757 | 2,3,4 | 2,4-Dichlorophenoxyacetic acid; see 2,4-D | |
| 609201 | 1 | 2,6-Dichloro-para-phenylenediamine | |
| 1836755 | 1,4 | 2,4-Dichlorophenyl p-nitrophenyl ether | |
| 26638197, 78875, 142289, 78999 | 1,2,3 | Dichloropropanes | |
| 78875 | 1,2 | 1,2-Dichloropropane; see Dichloropropanes | |
| 8003198 | 2 | Dichloropropene-dichloropropane (mixture) | |
| 26952238, 542756, 78886 | 1,2,3,4 | Dichloropropenes | |
| 709988 | 4 | 3,4-Dichloropropionanilide; see Propanil | |
| 75990 | 2,3 | 2,2-Dichloropropionic acid | |
| 8003198 | 2 | 1,2-Dichloropropylene | |
| 76142 (FC-114) | 3 | 1,2-Dichloro-1,1,2,2-tetrafluoro-ethane | |
| 62737 | 2 | 2,2-Dichlorovinyl dimethyl phosphate; see Dichlorvos | |
| 62737 | 1,2,3 | Dichlorvos | |
| 102307, 99309 | 2 | Dicloran | |
| 115322 | 1,2 | Dicofol; see 1,1-Bis(p-chlorophenyl)-2, 2,2-trichloroethanol | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 5124301 | 3 | Dicyclohexylmethane-4,4′- diisocyanate | |
| 77736 | 3 | Dicyclopentadiene | |
| 102545 | 3 | Dicyclopentadienyl iron | |
| 60571 | 1,2,3,4 | Dieldrin | |
| 84173 | 1 | Dienestrol | |
| 1464535 | 1 | Diepoxybutane | 12 |
| 111422 | 3 | Diethanolamine | |
| 109897 | 2,3 | Diethylamine | |
| 100378 | 3 | 2-(Diethylamino)ethanol | |
| 12391 | 3 | 1,4-Diethylene dioxide; see p-Dioxane | |
| 111400 | 3 | Diethylenetriamine | |
| 60297 | 3 | Diethyl ether; see Ethyl ether | |
| 298044 | 3 | O,O-Diethyl S-2-(ethylthio)ethyl phosphorodithioate; see Disulfoton | |
| 298022 | 3 | O,O-Diethyl S-(ethylthio)methyl phosphorodithioate; see Phorate | |
| 103231 | 1 | Di(2-ethylehexyl)adipate | |
| 117817 | 1 | Di-(2-ethylhexyl) phthalate; see Phthalate esters | |
| 1615801 | 1 | 1,2-Diethylhydrazine | |
| 333415 | 3 | O,O-Diethyl O-(2-isopropyl-6-methy-4-pyrimidinyl phosphorothioate; see Diazinon | |
| 96220 | 3 | Diethyl ketone | |
| 115902, 115913 | 3,4 | O,O-diethyl O-[4-(methylsufiny) phenyl] phosphorothioate (fensulfothion) | |
| 56382 | 3 | O,O-Diethyl O-(p-nitrophenyl) phosphorothioate; see Parathion | |
| 84662 | 2,3 | Diethyl phthalate; see Phthalate esters | |
| 56531 | 1 | Diethylstilbestrol | |
| 64675 | 1 | Diethyl sulfate | |
| 75616 | 3 | Difluorodibromomethane; see Dibromodifluoromethane | |
| 2238075 | 3 | Diglycidyl ether | |
| 101906 | 1 | Diglycidyl resorcinol ether | |
| 1563662 | 2,3,4 | 2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate (carbofuran) | |
| 94586 | 1 | Dihydrosafrole | |
| 123319 | 3 | p-Dihydroxybenzene; see Hydroquinone | |
| 108463 | 2 | meta-Dihydroxybenzene; see Resorcinol | |
| 794934 | 1 | Dihydroxymethylfuratrizine | |
| 108838 | 3 | Diisobutyl ketone | |
| 108189 | 3 | Diisopropylamine | |
| 108203 | 3 | Diisopropyl ether; see Isopropyl ether | |
| 828002 | 1 | Dimethoxane | |
| 119904 | 1 | 3,3′-Dimethoxybenzidine | |
| 91930 | 1 | 3,3′-Dimethoxybenzidine-4,4′-diisocyanate | |
| 109875 | 3 | Dimethoxymethane; see Methylal | |
| 6923224 | 3,4 | 3-(Dimethoxyphosphinyloxy)-N-methyl-cis-crotonamide (Monocrotophos) | |
| 127195 | 3 | N,N-Dimethylacetamide | |
| 124403 | 2,3 | Dimethylamine | |
| 60117 | 1,3 | 4-Dimethylaminoazobenzene | |
| 1300738 | 3 | Dimethylaminobenzene; see Xylidine | |
| 55738540 | 1 | trans-2-[(Dimethylamino) methylimino]-5-[2-(5-nitro-2-furyl)vinyl]-1,3,4-oxadiazole | |
| 121697 | 3 | N,N-Dimethylaniline | |
| 108383 | 2,3 | Dimethylbenzene; see Xylene, all isomers | |
| 119937 | 1 | 3,3′-Dimethylbenzidine | |
| 108849 | 3 | 1,3-Dimethylbutyl acetate; see sec-Hexyl acetate | |
| 79447 | 1 | Dimethylcarbamoyl chloride | |
| 300765 | 2,3 | 0,0-Dimethyl 0-(1,2-dibromo-2,2-dichloroethyl) phosphate (Naled) | |
| 121755 | 3 | O,O-Dimethyl S-(1,2-dicarboethoxyethyl) phosphorodithioate; see Malathion | |
| 8022002 | 3 | O,O-Dimethyl O-(2-(ethylthio)-ethyl) phosphorothioate and O,O-Dimethyl S-(2-(ethylthio)-ethyl) phosphorothioate mixture; see Methyl demeton | |
| 68122 | 3 | N,N-Dimethylformamide | |
| 108838 | 3 | 2,6-Dimethyl-4-heptanone; see Diisobutyl ketone | |
| 540738 | 1 | 1,2-Dimethylhydrazine | |
| 57147, 540738 | 1,3 | Dimethylhydrazine (all isomers) | |
| 67641 | 3 | Dimethyl ketone; see Acetone | |
| 115902, 115913 | 3,4 | 0,0-Dimethyl 0-[p-(methylsulfinyl)-phenyl]phosphorothioate (fensulfothion) | |
| 55389 | 3 | O,O-dimethyl O-[3-methyl-4 (methylthio) phenyl] phosphorothioate; see Fenthion | |
| 298000 | 3 | O,O-Dimethyl O-(p-nitrophenyl) phosphorothioate; see Methyl parathion | |
| 62759 | 1,3 | N,N-Dimethylnitrosamine; see N-Nitrosodimethylamine | |
| 86500 | 2,3,4 | 0,0-Dimethyl S-(4-oxo-benzotriazino-3-methyl) phosphorodithioate (Azinphos methyl) | |
| 105679 | 2 | 2,4-Dimethylphenol | |
| 1300716 | 2 | Dimethylphenol; see Xylenol | |
| 121697 | 3 | Dimethylphenylamine; see N,N-Dimethylaniline | |
| 10265926 | 4 | 0,S-Dimethyl phosphoramidothioate | |
| 950378 | 4 | 0,0-Dimethyl phosphorodithioate, S-ester with 4-(mercaptomethyl)-2-methoxy-$\Delta^2$-1,3,4-thiadiazolin-5-one | |
| 77781 | 2,3 | Dimethyl phthaltate; see Phthalate esters | |
| 77781 | 1,3 | Dimethyl sulfate | |
| 299843 | 2,3 | O,O-Dimethyl O-(2,4,5-trichlorophenyl) phosphorothioate; see Ronnel | |
| 148016 | 3 | Dinitrolmide; see 3,5-Dinitro-o-toluamide | |
| 25154545, 99650, 100254, 528290 | 2,3 | Dinitrobenzenes, all isomers | |
| 25154545 | 2 | Dinitrobenzol; see Dinitrobenzenes, all isomers | |
| 534521 | 2,3,4 | 4,6-Dinitro-o-cresol | |
| 534521 | 2 | Dinitrocresol; see Nitrophenols, all isomers | |
| 51285 | 2,4 | 2,4-Dinitrophenol; see Dinitrophenols | |
| 51285, 329715, 573568 | 2,4 | Dinitrophenols | |
| 42397648 | 1 | 1,6-Dinitropyrene | |
| 43977659 | 1 | 1,8-Dinitropyrene | |
| 148016 | 3 | 3,5-Dinitro-o-toluamide | |
| 606202 | 2 | 2,6-Dinitrotoluene | |
| 121142 | 2 | 2,4-Dinitrotoluene | |
| 25321146, 121142, 121142, 606202, 610399, 602017, 619518 | 2,3 | Dinitrotoluenes, all isomers | |
| 88857 | 4 | Dinoseb | |
| 117840 | 2 | Di-n-octyl phthalate | |
| 117817 | 3 | Di-sec-octyl phthalate; see Phthalate esters | |
| 123911 | 3 | 1,4-Dioxacyclohexane; see p-Dioxane | |
| 123911 | 1,3 | p-Dioxane | |
| 123911 | 1 | 1,4-Dioxane; see p-Dioxane | |
| 78342 | 3,4 | 2,3-p-Dioxanedithiol S,S-bis (0,0-diethyl phosphorodithioate) (dioxathion) | |
| 78342 | 3,4 | Dioxathion; see 2,3-p-Dioxanedithiol S,S-bis (O,O-diethyl phosphorodithioate) | |
| 92524 | 3 | Diphenyl; see Biphenyl | |
| 122394 | 3 | Diphenylamine | |
| 57410 | 1 | Diphenylhydantoin (Phenytoin) | |
| 630933 | 1 | Diphenylhydantoin (Phenytoin), sodium salt | |
| 38622183 | 2 | Diphenylhydrazine | |
| 122667 | 2 | 1,2-Diphenylhydrazine; see Hydrazobenzene | |
| 101688 | 3 | Diphenylmethane diisocyanate; see Methylene bis(4-phenylisocyanate) | |
| 34590948 | 3 | Dipropylene glycol monomethyl ether | |
| 123193 | 3 | Dipropyl ketone | |
| 85007, 2764729 | 2,3 | Diquat | |
| 1937377 | 1 | Direct Black 38 (technical grade) | |
| 2602462 | 1 | Direct Blue 6 (technical grade) | |
| 16071866 | 1 | Direct Brown 95 | |
| 2475458 | 1 | Disperse Blue 1 | |
| 97778 | 3 | Disulfiram | |
| 298044 | 2,3,4 | Disulfoton | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 298044 | 2,4 | Disyston; see Disulfoton | |
| 1189851 | 3 | Di-tert-butyl chromate; see Chromium compounds | |
| 330541 | 2,3 | Diuron | |
| 108576 | 3 | Divinyl benzene | |
| 27176870 | 2 | Dodecylbenzenesulfonic acid | 9 |
| 23214928 | 1 | Doxorubicin hydrochloride; see Adriamycin | |
| 60004 | 2 | EDTA | |
| 115297 | 2,3,4 | Endosulfan | |
| 959988 | 2 | alpha-Endosulfan | |
| 33213659 | 2 | beta-Endosulfan | |
| 1031078 | 2 | Endosulfan-sulfate | |
| 72208 | 2,3,4 | Endrin | |
| 7421934 | 2 | Endrin aldehyde | |
| 106898 | 1,2,3 | Epichlorohydrin | 12 |
| 2104645 | 3,4 | EPN | |
| 106876 | 1 | 1-Epoxyethyl-3,4-epixycyclohexane; see Vinyl cyclohexene dioxide | |
| 4016142 | 3 | 1,2-Epoxy-3-isopropoxypropane; see Isopropyl glycidyl ether | |
| 141377 | 1 | 3,4-Epoxy-6-methylcyclohexyimethyl-3,4-epoxy-6-methylcyclohexane carboxylate | |
| 122601 | 3 | 1,2-Epoxy-3-phenoxypropane; see Phenyl glycidyl ether | |
| 75569 | 3 | 1,2-Epoxypropane; see Propylene oxide | |
| 556525 | 3 | 2,3-Epoxypropanol; see Glycidol | |
| 12510428 | 1 | Erionite | |
| 75058 | 3 | Ethanenitrile; see Acetonitrile | |
| 75081 | 3 | Ethanethiol; see Ethyl mercaptan | |
| 64175 | 1,3 | Ethanol; see Ethyl alcohol | |
| 141435 | 3 | Ethanolamine | |
| 463514 | 3 | Ethenone; see Ketene | |
| 57636 | 1 | Ethinyloestradiol | |
| 563122 | 2,3,4 | Ethion | |
| 536334 | 1 | Ethionamide | |
| 110805 | 3 | 2-Ethoxyethanol; see Ethylene glycol monoethyl ether | |
| 111159 | 3 | 2-Ethoxyethanol acetate; see Ethylene glycol monoethyl ether acetate | |
| 141786 | 3 | Ethyl acetate | |
| 140885 | 1,3 | Ethyl acrylate | |
| 64175 | 1,3 | Ethyl alcohol | 13 |
| 75047 | 2,3 | Ethylamine | |
| 541855 | 3 | Ethyl sec-amyl ketone | |
| 100414 | 2,3 | Ethylbenzene | |
| 74964 | 3 | Ethyl bromide | |
| 106354 | 3 | Ethyl butyl ketone | |
| 75003 | 3 | Ethyl chloride | |
| 510156 | 1 | Ethyl-4,4′-dichlorobenzilate; see Chlorobenzilate | |
| 13194484 | 4 | 0-Ethyl S,S-dipropyl phosphorodithioate (ethoprop) | |
| 85007 | 3 | 1,1′-Ethylene-2,2′-bipyridinium dibromide; see Diquat | |
| 107073 | 3 | Ethylene chlorohydrin | |
| 107153 | 2,3 | Ethylenediamine | |
| 106934 | 1,2,3,4,5 | Ethylene dibromide | 33 |
| 107062 | 1,2,3,4 | Ethylene dichloride | |
| 107211 | 3 | Ethylene glycol | 14 |
| 628966 | 3 | Ethylene glycol dinitrate | |
| 111762 | 2,3 | Ethylene glycol monobutyl ether | |
| 110805 | 3,5 | Ethylene glycol monoethyl ether | |
| 111159 | 3,5 | Ethylene glycol monoethyl ether acetate | |
| 109864 | 3,5 | Ethylene glycol monomethyl ether | |
| 110496 | 3,5 | Ethylene glycol monomethyl ether acetate | |
| 151564 | 1,3 | Ethyleneimine | |
| 75218 | 1,2,3,5 | Ethylene oxide | 12 |
| 420122 | 1 | Ethylene sulphide | |
| 96457 | 1 | Ethylenethiourea | |
| 79016 | 2 | Ethylene trichloride; see Trichlorethylene | |
| 60297 | 3 | Ethyl ether | |
| 109944 | 3 | Ethyl formate | |
| 75343 | 3 | Ethylidene chloride | |
| 16219753 | 3 | Ethylidene norbornene | |
| 75081 | 3 | Ethyl mercaptan | |
| 62500 | 1 | Ethyl methanesulphonate | |
| 563122 | 2 | Ethyl methylene; see Ethion | |
| 78933 | 3 | Ethyl methyl ketone; see 2-Butanone | |
| 22224926 | 3,4 | Ethyl 3-methyl-4-(methylthio)-phenyl (1-methylethyl) phosphoramidate | |
| 100743 | 3 | N-Ethylmorpholine | |
| 2104645 | 3 | O-Ethyl O-(p-nitrophenyl) phenylphosphonothioate; see EPN | |
| 759739 | 1 | N-Ethyl-N-Nitrosourea; see N-Nitroso-N-ethylurea | |
| 56382 | 2,4 | Ethyl parathion; see Parathion | |
| 78104 | 3 | Ethyl silicate | |
| 100743 | 3 | 4-Ethyl-1,4-tetrahydrooxazine; see N-Ethylmorpholine | |
| 110805 | 3 | 2-Ethyoxyethanol; see Ethylene glycol monoethyl ether | |
| 97530 | 1 | Eugenol | |
| 314136 | 1 | Evans blue | |
| 2353459 | 1 | Fast Green FCF | |
| 22224926 | 3,4 | Fenamiphos; see Ethyl-3-methyl-4 (methylthio)phenyl (1-methylethyl) phosphoramidate | |
| 115902 | 3 | Fensulfothion; see O,O-Diethyl O-[4-(methylsulfinyl)phenyl] phosphorothioate | |
| 55389 | 3 | Fenthion | |
| 101428 | 2 | Fenuron | |
| 4482557 | 2 | Fenuron-TCA | |
| 14484641 | 3,4 | Ferbam | |
| 1185575 | 2 | Ferric ammonium citrate; see Iron salts, soluble | |
| 2944674 | 2 | Ferric ammonium oxalate; see Iron salts, soluble | |
| 7705080 | 2 | Ferric chloride; see Iron salts, soluble | |
| 14484641 | 3 | Ferric N,N-dimethylthiocarbamate; see Ferbam | |
| 7783508 | 2 | Ferric fluoride; see Iron salts, soluble | |
| 10421484 | 2 | Ferric nitrate; see Iron salts, soluble | |
| 10028225 | 2 | Ferric sulfate; see Iron salts, soluble | |
| 10045893 | 2 | Ferrous ammonium sulfate; see Iron salts, soluble | |
| 7758943 | 2 | Ferrous chloride; see Iron salts, soluble | |
| 7720787 | 2 | Ferrous sulfate; see Iron salts, soluble | |
| 12604589 | 3 | Ferrovanadium dust | 3 |
| 206440 | 2 | Fluoranthene | |
| 53963 | 3 | n-Fluoren-2-yl-acetamide; see 2-Acetylamino-fluorene | |
| | 2,3 | Fluoride, and inorganic fluoride compounds | |
| 7782414 | 2,3 | Fluorine | |
| 640197 | 4 | Fluoroacetamide/1081 | |
| 75694 | 3 | Fluorocarbon 11; see Fluorotrichlormethane | |
| 75718 | 3 | Fluorocarbon 12; see Dichlorodifluoromethane | |
| 75434 | 3 | Fluorocarbon 21; see Dichloromonofluoromethane | |
| 75456 | 3 | Fluorocarbon 22; see Chlorodifluoromethane | |
| 76120 | 3 | Fluorocarbon 112; see 1,1,2,2-Tetrachloro-1,2-difluoroethane | |
| 76131 | 3 | Fluorocarbon 113; see 1,1,2-Trichloro-1,2,2-trifluoroethane | |
| 76142 | 3 | Fluorocarbon 114; see 1,2-Dichloro-1,1,2,2-tetrafluoroethane | |
| 75694 | 3 | Fluorotrichloromethane | |
| 150505 | 4 | Folex; see s,s,s-Tributyl phosphorotritthioite | |
| 133073 | 4 | Folpet | |
| 944229 | 3,4 | Fonofos | |
| 50000 | 1,2,3 | Formaldehyde | |
| 75127 | 3 | Formamide | |
| 64186 | 2,3 | Formic acid | |
| 3570750 | 1 | 2-(2-Formylhydrazino)-4-(5-nitro-2-furyl) thiazole | |
| 110178 | 2 | Fumaric acid | 15 |
| 6164983 | 4 | Fundal; see Chlordimeform | |
| 98011 | 2 | 2-Furaldehyde; see Furfural | |
| 98011 | 2,3 | Furfural | |
| 98000 | 3 | Furfuryl alcohol | |
| 6164983 | 4 | Galecron; see Chlordimeform | |
| 8006619 | 3 | Gasoline | 16 |
| 7782652 | 3 | Germanium tetrahydride | |
| | 3 | Glass, fibrous or dust | 38 |
| 67730114 | 1 | Glu-P-1 (2-Amino-6-methyldipyrido[1,2-a:3′,2′-d]imidazole | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 67730103 | 1 | Glu–P–2 (2–Aminodipyrido[1,2–a:3′,2′–d]imidazole) | |
| 111308 | 3 | Glutaraldehyde | |
| 765344 | 1 | Glycidaldehyde | |
| 556525 | 3 | Glycidol | 12 |
| 7782425 | 3 | Graphite | 17 |
| 126078 | 1 | Griseofulvin | |
| 4680788 | 1 | Guinea Green B | |
| 86500 | 2 | Guthion; see O,O–Dimethyl S–(4–oxobenzotriazino–3–methyl) phosphorodithioate | |
| 16568028 | 1 | Gyromitrin (Acetaldehyde methylformylhydrazone) | |
| 822060 | 3 | HDI; see Hexamethylene diisocyanate | |
| 7440586 | 3 | Hafnium | |
| | 2 | Haloethers (other than those listed elsewhere, includes chloro–phenylphenyl ethers, bromophenylphenyl ether, bis(dichloroisopropyl) ether, bis (chloroethoxy) methane and polychlorinated diphenyl ethers) | |
| | 2 | Halomethanes | |
| 2784943 | | HC Blue 1 | |
| 76448 | 1,2,3,4 | Heptachlor | |
| 1024573 | 2 | Heptachlor epoxide | |
| 76448 | 3 | 1,4,5,6,7,8,8,–Heptachloro–3a, 4,7,7a–tetrahydro–4,7–methanoindene; see Heptachlor | |
| 142845 | 3 | n–Heptane | |
| 106354 | 3 | 3–Heptanone; see Ethyl butyl ketone | |
| 110430 | 3 | 2–Heptanone; see Methyl n–amyl ketone | |
| 118741 | 1,2 | Hexachlorobenzene; see Benzene hexachloride | |
| 87683 | 1,2,3 | Hexachlorobutadiene | |
| 608731 | 2 | Hexachlorocyclohexane | |
| | 1 | Hexachlorocyclohexanes | |
| 77474 | 2,3 | Hexachlorocyclopentadiene | |
| 72208 | 3 | 1,2,3,4,10,10–Hexachloro–6,7–epoxy–, 1,4,4a,5,6,7,8,8a–octahydro–1,4,–endo–endo–5,8–dimethano naphthalene and methabolites; see Endrin | |
| 60571 | 3 | 1,2,3,4,10,10–Hexachloro–6,7–epoxy–1,4,4a,5,6,7,8,8a–octahydro–1,4,–endo–exo–5,8–dimethanonaphthalene; see Dieldrin | |
| 67721 | 1,2,3 | Hexachloroethane | |
| 115297 | 3 | 6,7,8,9,10,10–Hexachloro–1,5,5a,6,9,9a–hexahydro–6,9–methano–2,4,3–benzodioxathiepin–3–oxide; see Endosulfan | |
| 309002 | 3 | 1,2,3,4,10,10–Hexachloro–1,4,4a,5,8,8a–hexahydro–endo–1,2–exo–5,8–di–methanonaphthalene; see Aldrin | |
| 1335871 | 2,3 | Hexachloronaphthalene | |
| 70304 | 2 | Hexachlorophene (HCP) | |
| 684162 | 3 | Hexafluoroacetone | |
| 684162 | 3 | 1,1,1,3,3,3,–Hexafluoro–2–propanone; see Hexafluoroacetone | |
| 822060 | 3 | Hexamethylene diisocyanate | |
| 680319 | 1 | Hexamethylphosphoramide | |
| | 3 | Hexane (all isomers) | |
| 591786 | 3 | 2–Hexanone; see Methyl n–butyl ketone | |
| 108101 | 3 | Hexone; see Methyl isobutyl ketone | |
| 108849 | 3 | sec–Hexyl acetate | |
| 107415 | 3 | Hexylene glycol | |
| 86544 | 1 | Hydralazine | |
| 302012 | 1,3 | Hydrazine | |
| 10035106 | 3 | Hydrobromic acid; see Hydrogen bromide | |
| 7647010 | 2,3 | Hydrochloric acid; see Hydrogen chloride | |
| 74908 | 2,3,4 | Hydrocyanic acid; see Hydrogen cyanide | |
| 7664393 | 2,3 | Hydrofluoric acid; see Hydrogen fluoride | |
| 1333740 | 3 | Hydrogen | |
| 5124301 | 3 | Hydrogenated MDI; see Dicyclohexylmethane–4,4′–diisocyanate | |
| | 3 | Hydrogenated terphenyls | |
| 10035106 | 3 | Hydrogen bromide | |
| 7647010 | 2,3 | Hydrogen chloride | |
| 74908 | 2,3,4 | Hydrogen cyanide | |
| 7664393 | 2,3 | Hydrogen fluoride | |
| 7722841 | 1,3 | Hydrogen peroxide | |
| 7783075 | 2 | Hydrogen selenide; see Selenium and selenium compounds | |
| 7783064 | 2,3 | Hydrogen sulfide | |
| 123319 | 3 | Hydroquinone | |
| 141662 | 3,4 | 3–Hydroxy–N,N–dimethyl–cis–croto–namide dimethyl phosphate (dicrotophos) | |
| 6923224 | 3 | 3–Hydroxy–N–methyl–cis–crotonamide dimethyl phosphate; see 3–(Dimethoxyphosphinyloxy)–N–methyl–ciscrotonamide | |
| 123422 | 3 | 4–Hydroxy–4–methyl–2–pentanone | |
| 999611 | 3 | Hydroxypropyl acrylate | |
| 4016142 | 3 | IGE; see Isopropyl glycidyl ether | |
| 4098719 | 3 | IPDI; see Isophorone diisocyanate | |
| 76180966 | 1 | IQ; (2–Amino–3–methylimidazo[4,5–f]quinoline) | |
| 95316 | 3 | Indene | |
| 193395 | 1,2 | Indeno(1,2,3–cd)pyrene | |
| | 2,3 | Indium and indium compounds | |
| 7553562 | 3 | Iodine | |
| 75478 | 3 | Iodoform | |
| 7439896 | 2 | Iron | |
| 9004664 | 1 | Iron dextran | |
| 8050939 | 1 | Iron–dextrin complex | |
| 1309371 | 3 | Iron oxide fume | |
| 13463406 | 3 | Iron pentacarbonyl | |
| | 2,3 | Iron salts, soluble | 18 |
| 15503863 | 1 | Isatidine | |
| 12392 | 3 | Isoamyl acetate; see Amyl acetate | |
| 123513 | 3 | Isoamyl alcohol | |
| 110190 | 3 | Isobutyl acetate (2–methylpropyl acetate) | |
| 78831 | 3 | Isobutyl alcohol | |
| 78819 | 2 | Isobutylamine; see Butylamine, all isomers | |
| 54853 | 1 | Isonicotinic acid hydrazide (Isoniazid) | |
| 26952216 | 3 | Isooctyl alcohol | |
| 78591 | 2,3 | Isophorone | |
| 4098719 | 3 | Isophorone diisocyanate | |
| 3778732 | 1 | Isophosphamide | |
| 78795 | 2 | Isoprene | |
| 42504461 | 2 | Isopropanolamine dodecyl–benzenesulfonate | 9 |
| 109591 | 3 | Isopropoxyethanol | |
| 114261 | 3 | 2–Isopropoxyphenyl N–methylcarbamate (propoxur) | |
| 108214 | 3 | Isopropyl acetate | |
| 67630 | 1,3 | Isopropyl alcohol | |
| 75310 | 3 | Isopropylamine | |
| 643287 | 3 | N–Isopropylaniline | |
| 98828 | 3 | Isopropylbenzene; see Cumene | |
| 108203 | 3 | Isopropyl ether | |
| 4016142 | 3 | Isopropyl glycidyl ether | 12 |
| 120581 | 1 | Isosafrole | |
| 115322 | 2 | Kelthane; see 1,1–Bis(p–chlorophenyl)–2,2,2–trichloroethanol | |
| 143500 | 1,2 | Kepone; see Chlordecone | |
| 463514 | 3 | Ketene | |
| 16752775 | 4 | Lannate; see S–Methyl N–((methyl carbamoyl)oxy)–thioacetimidate | |
| 303344 | 1 | Lasiocarpine | |
| 7439921 | 1,2,3 | Lead | 3 |
| 301042 | 2 | Lead acetate; see Lead compounds | |
| 7784409, 7645252, 10102480 | 2,3 | Lead arsenate; see Lead compounds | |
| 7758954 | 2 | Lead chloride; see Lead compounds | |
| 7758976 | 3 | Lead chromate; see Chromium compounds | |
| | 1,2,3 | Lead compounds | |
| 13814965 | 2 | Lead fluoborate; see Lead compounds | |
| 7783462 | 2 | Lead fluoride; see Lead compounds | |
| 10101630 | 2 | Lead iodide; see Lead compounds | |
| 10099748 | 2 | Lead nitrate; see Lead compounds | |
| 7446277 | 1 | Lead phosphate; see Lead compounds | |
| 7428480, 1072351, 52652592 | 2 | Lead stearate; see Lead compounds | |
| 1335326 | 1 | Lead subacetate; see Lead compounds | |
| 7446142 | 2 | Lead sulfate; see Lead compounds | |
| 1314870 | 2 | Lead sulfide; see Lead compounds | |
| 78002 | 2,3 | Lead tetraethyl; see Lead compounds | |
| 75741 | 3 | Lead tetramethyl; see Lead compounds | |
| 592870 | 2 | Lead thiocyanate; see Lead compounds | |
| 5141208 | 1 | Light Green SF | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 58899 | 2,3,4 | Lindane and other Hexachlorocyclohexane isomers | |
| 330552 | 2 | Linuron | |
| 14307358 | 2 | Lithium chromate; see Chromate compounds | |
| 7580678 | 3 | Lithium hydride | |
| 21884446 | 1 | Luteoskyrin | |
| 101144 | 3 | MBOCA; see 4,4′-Methylene bis(2-chloroaniline) | |
| 94746 | 4 | MCPA (2-methyl-4-chloro-phenoxyacetic acid) | |
| 101779 | 3 | MDA; see 4,4′-Methylene dianiline | |
| 101688 | 3 | MDI; see Methylene bis(4-phenylisocyanate) | |
| 68006837 | 1 | MeA-a-C (2-Amino-3-methyl-9H-pyrido [2,3-b]indole) | |
| 78933 | 3 | MEK; see 2-Butanone | |
| 101144 | 1 | MOCA; see 4,4′-Methylene bis(2-chloroaniline) | |
| | 1 | MOPP | |
| 7439954 | 2 | Magnesium | |
| 1309484 | 3 | Magnesium oxide | 3 |
| 121755 | 2,3 | Malathion | |
| 110167 | 2 | Maleic acid | |
| 108316 | 2,3 | Maleic anhydride | |
| 7439965 | 2,3 | Manganese | 3 |
| | 3 | Manganese compounds | |
| 12079651 | 3 | Manganese, cyclopentadienyl-tricarbonyl | |
| 1317537 | 3 | Manganese tetroxide; see Manganese compounds | |
| 551746 | 1 | Mannomustine | |
| 71589 | 1 | Medroxyprogesterone acetate | |
| 148823 | 1 | Melphalan | |
| 2032657 | 2 | Mercaptodimethur | |
| 592041 | 2 | Mercuric cyanide; see Mercury and mercury compounds | |
| 10045940 | 2 | Mercuric nitrate; see Mercury and mercury compounds | |
| 7783359 | 2 | Mercuric sulfate; see Mercury and mercury compounds | |
| 592858 | 2 | Mercuric thiocyanate; see Mercury and mercury compounds | |
| 7782867 | 2 | Mercurous nitrate; see Mercury and mercury compounds | |
| | 2,3,4 | Mercury and mercury compounds | |
| 531760 | 1 | Merphalan | |
| 108678 | 3 | Mesitylene; see Trimethylbenzene (all isomers) | |
| 141797 | 3 | Mesityl oxide | |
| 72333 | 1 | Mestranol | |
| 2032657 | 2 | Mesurol; see Mercaptodimethur | |
| 79414 | 3 | Methacrylic acid | |
| 74931 | 2,3 | Methanethiol; see Methyl mercaptan | |
| 67561 | 3 | Methanol; see Methyl alcohol | |
| 2032657 | 2 | Methiocarb; see Mercaptodimethur | |
| 16752775 | 3,4 | Methomyl; see 5-Methyl N-[(methylcarbamoyl)oxy]-thioacetanide | |
| 298817 | 1 | Methoxsalen (with ultraviolet therapy) | |
| 72435 | 2,3 | Methoxychlor | |
| 109864 | 3 | 2-Methoxyethanol; see Ethylene glycol monomethyl ether | |
| 110496 | 3 | 2-Methoxyethyl acetate; see Ethylene glycol monomethyl ether acetate | |
| 150765 | 3 | 4-Methoxyphenol | |
| 484208 | | 5-Methoxypsoralen | |
| 298817 | 1 | 8-Methoxypsoralen; see Methoxsalen | |
| 79209 | 3 | Methyl acetate | |
| 74997 | 3 | Methyl acetylene | |
| | 3 | Methyl acetylene-propadiene mixture | |
| 123739 | 3 | beta-Methylacrolein; see Crotonaldehyde | |
| 96333 | 3 | Methyl acrylate | |
| 126987 | 3 | alpha-Methylacrylonitrile | |
| 109875 | 3 | Methylal | |
| 67561 | 3 | Methyl alcohol | 30 |
| 74895 | 2,3 | Methylamine | |
| 108112 | 3 | Methyl amyl alcohol; see Methyl isobutyl carbinol | |
| 110430 | 3 | Methyl n-amyl ketone | |
| | 1 | 5-Methylangelicin | |
| 100618 | 3 | N-Methylaniline | |
| 95534 | 1,3 | o-Methylaniline | |
| 75558 | 1,3 | 2-Methylaziridine | |
| 590965 | 1 | Methylazoxymethanol | |
| 592621 | 1 | Methylazoxymethyl acetate | |
| 74839 | 1,2,3,4 | Methyl bromide | |
| 78795 | 2 | 2-Methyl-1,3-butadiene; see Isoprene | |
| 123513 | 3 | 3-Methylbutanol; see Isoamyl alcohol | |
| 123922 | 3 | 3-Methylbutyl acetate; see Amyl acetate, all isomers | |
| 591786 | 3 | Methyl n-butyl ketone | |
| 13909096 | 1 | Methyl-CCNU; see 1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea | |
| 109864 | 5 | Methyl Cellosolve®; see Ethylene glycol monomethyl ether | |
| 74873 | 2,3 | Methyl chloride | |
| 71556 | 2,3 | Methyl chloroform | |
| 107302 | 1,3 | Methyl chloromethyl ether | 31 |
| 3351324 | 1 | 2-Methylchrysene | |
| 3351313 | 1 | 3-Methylchrysene | |
| 3351302 | 1 | 4-Methylchrysene | |
| 3697243 | 1 | 5-Methylchrysene | |
| 1705857 | 1 | 6-Methylchrysene | |
| 75058 | 3 | Methyl cyanide; see Acetonitrile | |
| 137053 | 3 | Methyl 2-cyanoacrylate | |
| 108872 | 3 | Methylcyclohexane | |
| 1331233, 591231, 583595, 25639423 | 3 | Methylcyclohexanol, all isomers | |
| 583608 | 3 | o-Methylcyclohexanone | |
| 12108133 | 3 | 2-Methylcyclopentadienyl manganese tricarbonyl | |
| 8022002 | 3 | Methyl demeton | |
| 534521 | 2,3 | 2-Methyl-4,6-dinitrophenol; see 4,6-Dinitro-O-cresol | |
| 99809 | 1 | N-Methyl-N,4-Dinitrosoaniline | |
| 75092 | 1,2,3,5 | Methylene chloride | |
| 101144 | 1,3 | 4,4′-Methylene bis(2-chloroaniline) | |
| 5124301 | 3 | Methylene bis(4-cyclohexylisocyanate); see Dicyclohexylmethane-4,4′-diisocyanate | |
| 101611 | 1 | 4,4′-Methylene bis(N,N-dimethyl)benzenamine | |
| 838880 | 1 | 4,4′-Methylene bis(2-methylaniline) | |
| 101688 | 3 | Methylenebis(4-phenyl isocyanate) | |
| 101779 | 1,3 | 4,4′-Methylenedianiline | |
| 13552448 | | 4,4′-Methylenedianiline dihydrochloride | |
| 78933 | 3 | Methyl ethyl ketone; see 2-Butanone | |
| 1338234 | 3 | Methyl ethyl ketone peroxide | |
| 33543316 | 1 | 2-Methylfluoranthene | |
| 107313 | 3 | Methyl formate | |
| 541855 | 3 | 5-Methyl-3-heptanone; see Ethyl sec-amyl ketone | |
| 60344 | 3 | Methyl hydrazine | |
| 74884 | 1,3 | Methyl iodide | |
| 110123 | 3 | Methyl isoamyl ketone | |
| 108112 | 3 | Methyl isobutyl carbinol | |
| 108101 | 3 | Methyl isobutyl ketone | |
| 624839 | 3 | Methyl isocyanate | |
| 563804 | 3 | Methyl isopropyl ketone | |
| 74931 | 2,3 | Methyl mercaptan | |
| 80626 | 2,3 | Methyl methacrylate | |
| 66273 | 1 | Methyl methanesulfonate | |
| 16752775 | 3,4 | S-Methyl N-[(methylcarbamoyl)oxy]-thioacetamidate (Methomyl) | |
| 80626 | 2,3 | Methyl 2-methyl-2-propenoate; see Methyl methacrylate | |
| 129157 | 1 | 2-Methyl-1-nitroanthraquinone | |
| 70257 | 1 | N-Methyl-N′-nitro-N-nitroso-guanidine | |
| 684935 | 1 | N-Methyl-N-Nitrosourea; see N-Nitroso-N-methylurea | |
| 615532 | 1 | N-Methyl-N-Nitrosourethane; see N-Nitroso-N-methylurethane | |
| 298000 | 2,3,4 | Methyl parathion | |
| 108112 | 3 | 4-Methyl-2-pentanol; see Methyl isobutyl carbinol | |
| 141797 | 3 | 4-Methyl-3-pentene-2-one; see Mesityl oxide | |
| 108849 | 3 | 4-Methyl-2-pentyl acetate; see sec-Hexyl acetate | |
| 98839 | 3 | 1-Methyl-1-phenylethene; see alpha Methylstyrene | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 78831 | 3 | 2–Methylpropanol; see Isobutyl alcohol | |
| 110190 | 3 | 2–Methylpropyl acetate; see Isobutyl acetate | |
| 107879 | 3 | Methyl propyl ketone; see 2–Pentanone | |
| 54115 | 3 | 1–Methyl–2–(3–pyridyl) pyrrolidine; see Nicotine | |
| 681845 | 3 | Methyl silicate | |
| 98839 | 3 | alpha–Methylstyrene | |
| 77781 | 3 | Methyl sulfate; see Dimethyl sulfate | |
| 58184 | 1 | Methyl testosterone | |
| 56042 | 1 | Methylthiouracil | |
| 484208 | 1 | 5–Methyoxypsoralen | |
| 443481 | 1 | Metronidazole | |
| 7786347 | 2,3,4 | Mevinphos; see alpha–2–Carbomethoxy–1–methylvinyl dimethyl phosphate | |
| 315184 | 2 | Mexacarbate | |
| 12001262 | 3 | Mica | 19 |
| | 3 | Mineral wool fiber | |
| 2385855 | 1,2 | Mirex | |
| 50077 | 1 | Mitomycin C | |
| 13194484 | 4 | Mocap; see O–Ethyl S,S dipropyl phosphorodithioate | |
| 2212671 | 4 | Molinate | |
| 7439987 | 2,3 | Molybdenum | 3 |
| | 3 | Molybdenum compounds | 20 |
| 10265926 | 4 | Monitor; see O,S–Dimethyl phosphoramidothioate | |
| 108907 | 2,3 | Monochlorobenzene; see Chlorinated benzenes | |
| 315220 | 1 | Monocrotaline | |
| 6923224 | 3,4 | Monocrotophos; see 3–(Dimethoxyphosphinyloxy)–N–methyl–cis–crotonamide | |
| 75047 | 2 | Monoethylamine; see Ethylamine | |
| 74895 | 2 | Monomethylamine; see Methylamine | |
| 100618 | 3 | Monomethylaniline; see N–Methylaniline | |
| 60344 | 3 | Monomethyl hydrazine; see Methyl hydrazine | |
| 150685 | 1,2 | Monuron | |
| 140410 | 2 | Monuron–TCA | |
| 110918 | 3 | Morpholine | |
| 139913 | 1 | 5–(Morpholinomethyl)–3–[(5–nitrofurfurylidene)–amino] –2–oxazolidinone | |
| 7647010 | 2 | Muriatic acid; see Hydrogen chloride | |
| 505602 | 1 | Mustard Gas | |
| 25551284 | 3 | NDI; see Naphthalene diisocyanate | |
| 139139 | 2 | NTA; see Nitrilotriacetic acid | |
| 3771195 | 1 | Nafenopin | |
| 300765 | 3 | Naled; see O,O–Dimethyl O–(1,2–dibromo–2,2 dichloroethyl) phosphate | |
| 8030317 | 3 | Naphtha, coal tar | |
| 91203 | 2,3 | Naphthalene | |
| 2243621 | 1 | 1,5–Naphthalenediamine | |
| 25551284 | 3 | Napthalene diisocyanate | |
| 1338245 | 2 | Naphthenic acid | |
| 134327 | 3 | 1–Naphthylamine; see alpha–Naphthylamine | |
| 91598 | 1 | 2–Naphthylamine; see beta–Naphthylamine | |
| 134327 | 3 | alpha–Naphthylamine | |
| 91598 | 1,3 | beta–Naphthylamine | 31 |
| 63252 | 3 | 1–Naphthyl N–methylcarbamate; see Carbaryl | |
| 86884 | 3 | 1–(1–Naphthyl)–2–thiourea | |
| 22224926 | 4 | Nemacur; see Ethyl 3–methyl–4–(methylthio) phenyl (1–methyl ethyl) phosphoramidate | |
| 563122 | 2 | Nialate; see Ethion | |
| 7440020 | 1,2,3 | Nickel | 3 |
| 15699180 | 2 | Nickel ammonium sulfate; see Nickel compounds | |
| 13463393 | 3 | Nickel carbonyl; see Nickel compounds | |
| 37211055 | 2 | Nickel chloride; see Nickel compounds | |
| 7718549 | 1,2,3 | Nickel compounds | |
| 12054487 | 2 | Nickel hydroxide; see Nickel compounds | |
| 14216752 | 2 | Nickel nitrate; see Nickel compounds | |
| 12035722 | 1 | Nickel subsulphide; see Nickel compounds | |
| 778614 | 2 | Nickel sulfate; see Nickel compounds | |
| 54115 | 3,4 | Nicotine | |
| 56382 | 2 | Niran; see Parathion | |
| 61574 | 1 | Niridazole | |
| 139946 | 1 | Nithiazide | |
| 1929824 | 3 | Nitrapyrin; see 2–Chloro–6–(trichloromethyl) pyridine | |
| 7697372 | 2,3 | Nitric acid | |
| 10102439 | 3 | Nitric oxide | |
| 139139 | 2 | Nitrilotriacetic acid | |
| 602879 | 1 | 5–Nitroacenaphthene | |
| 100016 | 3 | p–Nitroaniline | |
| 99592 | 1 | 5–Nitro–o–anisidine | |
| 98953 | 2,3 | Nitrobenzene | |
| 100005 | 3 | p–Nitrochlorobenzene | |
| 7496028 | 1 | 6–Nitrochrysene | |
| 92933 | 3 | 4–Nitrodiphenyl | 31 |
| 79243 | 3 | Nitroethane | |
| 1836755 | 1 | Nitrofen (technical grade); see 2,4–Dichlorphenyl p–nitrophenyl ether | |
| 607578 | 1 | 2–Nitrofluorene | |
| 59870 | 1 | Nitrofurazone | |
| 555840 | 1 | 1–[(5–Nitrofurfurylidene)–amino]–2–imidazolidinone | |
| 531828 | 1 | N–4–[(5–Nitro–2–furyl)– 2–thiazolyl] acetamide | |
| 10102440 | 2,3 | Nitrogen dioxide | |
| 51752, 55867 | 1 | Nitrogen mustard and its hydrochloride | |
| 302705, 126852 | 1 | Nitrogen mustard N–oxide and its hydrochloride | |
| 10102440 | 2,3 | Nitrogen tetroxide; see Nitrogen dioxide | |
| 7783542 | 3 | Nitrogen trifluoride | |
| 55630 | 3 | Ntroglycerin | |
| 75525 | 3 | Nitromethane | |
| 25154556, 554847, 88755, 100027 | 2 | Nitrophenols, all isomers | |
| 79469 | 1,3 | 2–Nitropropane; see Nitropropanes | |
| 108032, 794691 | 3 | Nitropropanes | |
| 57835924 | 1 | 4–Nitropyrene | |
| 5522430 | 1 | 1–Nitropyrene | |
| | 2 | Nitrosamines | |
| 1133648 | 1 | N′–Nitrosoanabasine | |
| 924163 | 1 | N–Nitroso–di–n–butylamine | |
| 1116547 | 1 | N–Nitrosodiethanolamine | |
| 55185 | 1 | N–Nitrosodiethylamine | |
| 62759 | 1,2,3 | N–Nitrosodimethylamine | |
| 86306 | 1,2 | N–Nitrosodiphenylamine | |
| 621647 | 1,2 | N–Nitroso–di–n–propylamine | |
| 759739 | 1 | N–Nitroso–N–ethylurea | |
| 60153493 | 1 | 3–(N–Nitrosomethylamino)propionitrile | |
| 64091914 | 1 | 4–(N–Nitrosomethylamino)–1–(3–pyridyl)–1–butanone (NNK) | |
| 10595956 | 1 | N–Nitrosomethylethylamine | |
| 684935 | 1 | N–Nitroso–N–methylurea | |
| 615532 | 1 | N–Nitroso–N–methylurethane | |
| 4549400 | 1 | N–Nitrosomethylvinylamine | |
| 59892 | 1 | N–Nitrosomorpholine | |
| 16543558 | 1 | N–Nitrosonornicotine | |
| 100754 | 1 | N–Nitrosopiperidine | |
| 930552 | 1 | N–Nitrosopyrrolidine | |
| 13256229 | 1 | N–Nitrososarcosine | |
| 1321126, 88722, 99081, 99990 | 2,3 | Nitrotoluenes | |
| 76062 | 3 | Nitrotrichloromethane; see Chloropicrin | |
| 10024972 | 3 | Nitrous oxide | |
| 111842 | 3 | Nonane | |
| 68224 | 1 | Norethisterone | |
| 51989 | 1 | Norethisterone acetate | |
| 2698411 | 3 | OCBM; see O–Chlorobenzylidine malonitrile | |
| 152169 | 4 | OMPA; see Schradan | |
| 303479 | 1 | Ochratoxin A | |
| 2234131 | 2,3 | Octachloronaphthalene | |
| 57749 | 3 | 1,2,4,5,6,7,8,8–Octachloro 3a,4,7,7a,–tetrahydro–4,7–methanoindane; see Chlordane | |
| 111659 | 3 | Octane | |
| 50282 | 1 | Oestradiol–17B | |
| 22966796 | 1 | Oestradiol mustard | |
| | 1 | Oestrogens, steroidal | |
| | 1 | Oestrogens, nonsteroidal | |
| 53167 | 1 | Oestrone | |
| | 1,2,3 | Oil mist, particulate | 21 |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 2646175 | 1 | Oil orange SS | |
| | 1 | Oral contraceptives, certain Oestrogen–progestin combinations | |
| 20816120 | 3 | Osmium tetroxide | |
| 144627 | 3 | Oxalic acid | |
| 604751 | 1 | Oxazepam | |
| 301122 | 4 | Oxydemetonmethyl | |
| 7783417 | 3 | Oxygen difluoride | |
| 10028156 | 3 | Ozone | 22 |
| | 1,2,3 | PCB: see Polychlorobiphenyls | |
| 12674112 | 2 | PCB–1016; see Polychlorobiphenyls | |
| 11104282 | 2 | PCB–1221; see Polychlorobiphenyls | |
| 11141165 | 2 | PCB–1232; see Polychlorobiphenyls | |
| 53469219 | 2 | PCB–1242; see Polychlorobiphenyls | |
| 12672296 | 2 | PCB–1248; see Polychlorobiphenyls | |
| 11097691 | 2 | PCB–1254; see Polychlorobiphenyls | |
| 11096825 | 2 | PCB–1260; see Polychlorobiphenyls | |
| 82688 | 2 | PCNB; see Quintozene (Pentachloronitrobenzene) | |
| 87865 | 2,3 | PCP; see Pentachlorophenol | |
| 6423434 | 3 | PGDN; see Propylene glycol dinitrate | |
| 122601 | 3 | PGE; see Phenyl glycidyl ether | |
| 7440053 | 2 | Palladium | |
| 794394 | 1 | Panfuran S; see Dihydroxymethylfuratrizine | |
| 8002742 | 3 | Paraffin wax fume | |
| 30525894 | 2 | Paraformaldehyde | |
| 2074502, 1910425 | 3,4 | Paraquat | |
| 10048325 | 1 | Parasorbic acid | |
| 56382 | 2,3,4 | Parathion | |
| 90653 | 1 | Penicillic acid | |
| 19624227 | 3 | Pentaborane | |
| 76017 | 1 | Pentachloroethane | |
| 1321648 | 2,3 | Pentachloronaphthalene | |
| 87865 | 2,3 | Pentachlorophenol | |
| 109660 | 3 | Pentane | |
| 107879 | 3 | 2–Pentanone | |
| 77474 | 2 | Perchlorocyclopentadiene; see Hexachlorocyclo–pentadiene | |
| 67721 | 3 | Perchloroethane; see Hexachloroethane | |
| 127184 | 1,2,3,5 | Perchloroethylene | |
| 594423 | 3 | Perchloromethyl mercaptan | |
| 7616946 | 3 | Perchloryl fluoride | |
| 72560 | 2 | Perthane | |
| 60102376 | 1 | Petasitenine | |
| 62442 | 1 | Phenacetin | |
| 532274 | 3 | Phenacyl chloride; see alpha–Chloroacetophenone | |
| 85018 | 2 | Phenanthrene | |
| 136403, 94780 | 1 | Phenazopyridine and its hydrochloride | |
| 156514 | 1 | Phenelzine sulphate | |
| 103037 | 1 | Phenicarbazide | |
| 50066 | 1 | Phenobarbital | |
| 108952 | 2,3 | Phenol | |
| | 2 | Phenolic compounds (4AAP) | |
| | 2 | Phenols | |
| 92842 | 3 | Phenothiazine | |
| 59861, 63923 | 1 | Phenoxybenzamine and its hydrochloride | |
| 122394 | 3 | n–Phenylaniline; see Diphenylamine | |
| 92524 | 3 | Phenylbenzene; see Biphenyl | |
| 100470 | 2 | Phenyl cyanide; see Benzonitrile | |
| 106503 | 3 | p–Phenylenediamine | |
| 100414 | 2 | Phenylethane; see Ethylbenzene | |
| 101848 | 3 | Phenyl ether, vapor | 14 |
| 100425 | 2,3 | Phenylethylene; see Styrene, monomer | |
| 122601 | 1,3 | Phenyl glycidyl ether | 12 |
| 100630 | 3 | Phenylhydrazine | |
| 108985 | 3 | Phenyl mercaptan | |
| 135886 | 1 | N–Phenyl–2–naphthylamine | |
| 132274 | 1 | o–Phenylphenate, sodium; see Sodium ortho–phenylphenate | |
| 638211 | 3 | Phenylphosphine | |
| 57410 | 1 | Phenytoin; see Diphenylhydantoin | |
| 298022 | 3,4 | Phorate | |
| 4104144 | 4 | Phosacetim | |
| 7786347 | 2,4 | Phosdrin; see alpha–2–Carbomethoxy–1–methylvinyl dimethyl phosphate | |
| 75445 | 2,3 | Phosgene | |
| 13171216 | 4 | Phosphamidon | |
| 7803512 | 3 | Phosphine | |
| 7664382 | 2,3 | Phosphoric acid | |
| 563122 | 2 | Phosphorodithioate; see Ethion | |
| 7723140 | 2,3 | Phosphorus | |
| 10025873 | 2,3 | Phosphorus oxychloride | |
| 10026138 | 3 | Phosphorus pentachloride | |
| 1314803 | 2,3 | Phosphorus pentasulfide | |
| 7719122 | 2,3 | Phosphorus trichloride | |
| 121755 | 2 | Phosphothion; see Malathion | |
| | 1,2,3 | Phthalate esters | 36 |
| 85449 | 3 | Phthalic anhydride | |
| 626175 | 3 | m–Phthalodinitrile | |
| 1918021 | 1,3,4 | Picloram | |
| 88891 | 3 | Picric acid | |
| 83261 | 3 | Pindone; see 2–Pivalyl–1,3–indandione | |
| 142643 | 3 | Piperazine dihydrochloride | |
| 83261 | 3 | 2–Pivalyl–1,3–indandione (pindone) | |
| 744064 | 2,3 | Platinum, metal | |
| | 3 | Platinum, soluble salts | |
| | 1 | Polybrominated biphenyls | |
| 1336363, 53449219, | 1,2,3 | Polyhlorobiphenyls | |
| 11097691 | 2 | Polychlorinated biphenyls; see Polychlorobiphenyls | |
| | 2 | Polycyclic Organic Matter; see Polynuclear aromatic hydrocarbons | |
| | 1,2 | Polynuclear aromatic hydrocarbons | 23 |
| | 3 | Polytetrafluoroethylene, decomposition products | |
| 9003398 | 1 | Polyvinyl pyrrolidone | |
| 3761533 | 1 | Ponceau MX | |
| 3564098 | 1 | Ponceau 3R | |
| 7440097 | 2 | Potassium | |
| 7784410 | 2 | Potassium arsenate; see Arsenic and arsenic compounds | |
| 10124502 | 2 | Potassium arsenite; see Arsenic and arsenic compounds | |
| 7778509 | 2 | Potassium bichromate; see Chromuim compounds | |
| 23746341 | 1 | Potassium bis(2–hydroxyethyl) dithiocarbamate | |
| 7758012 | 1 | Potassium bromate | |
| 7789006 | 2 | Potassium chromate; see Chromium compounds | |
| 151508 | 2 | Potassium cyanide; see Cyanides, inorganic salts | |
| 1310583 | 2,3 | Potassium hydroxide | |
| 7722647 | 2 | Potassium permanganate | |
| 366701 | 1 | Procarbazine hydrochloride | |
| 57830 | 1 | Progesterone | |
| | 1 | Progestins | |
| 51025 | 1 | Pronetalol hydrochloride | |
| 120714 | 1 | 1,3–Propane sultone | |
| 709988 | 4 | Propanil | |
| 2312358 | 2,4 | Propargite | |
| 107197 | 3 | Propargyl alcohol | |
| 122429 | 2 | Propham | |
| 57578 | 1,3 | beta–Propiolactone | |
| 79094 | 2,3 | Propionic acid | |
| 123626 | 2 | Propionic anhydride | |
| 114261 | 2,3 | Propoxur; see 2–Isopropoxyphenyl N–methylcarbamate | |
| 109604 | 3 | n–Propyl acetate | |
| 71238 | 3 | n–Propyl alcohol | |
| 627123 | 1 | n–Propyl carbamate | |
| 115071 | 3 | Propylene | |
| 78875 | 2,3 | Propylene dichloride; see Dichloropropanes | |
| 6423434 | 3 | Propylene glycol dinitrate | |
| 107982 | 3 | Propylene glycol monomethyl ether | |
| 75558 | 3 | Propyleneimine; see 2–Methylaziridine | |
| 75569 | 1,2,3 | Propylene oxide | 12 |
| 627134 | 3 | n–Propyl nitrate | |
| 51525 | 1 | Propylthiouracil | |
| 74997 | 3 | Propyne; see Methylacetylene | |
| 107197 | 3 | 2–Propyn–1–ol; see Propargyl alcohol | |
| 87625625 | 1 | Ptaquiloside | |
| 129000 | 2 | Pyrene | |
| 121299, 121211 | 2 | Pyrethrins | |
| 8003347 | 3 | Pyrethrum | |
| 110861 | 3 | Pyridine | |
| 58140 | 1 | Pyrimethamine | |
| 120809 | 3 | Pyrocatechol; see Catechol | |
| 98011 | 2 | Pyromucic aldehyde; see Furfural | |
| 117359 | 1 | Quercetin | |
| 91225 | 2 | Quinoline | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 106514 | 3 | Quinone | |
| 82688 | 1 | Quintozene (Pentachloronitrobenzene) | |
| 121824 | 3 | RDX; see Cyclotrimethylenetrinitramine | |
| | 2 | Radionuclides | |
| 13982633 | 2 | Radium 226 | |
| 10043922 | 1 | Radon | |
| 86884 | 3 | Ratrack; see 1-(1-Naphthyl)-2-thiourea | |
| 50555 | 1 | Reserpine | |
| 108463 | 2,3 | Resorcinol | |
| 480546 | 1 | Retrorsine | |
| 989388 | 1 | Rhodamine 6G | |
| 81889 | 1 | Rhodamine B | |
| 7440166 | 3 | Rhodium | 3 |
| | 3 | Rhodium compounds | |
| 36791045 | 5 | Ribavirin | |
| 13292461 | 1 | Rifampicin | |
| 299843 | 2,3 | Ronnel | |
| | 3 | Rosin core solder, pyrolysis products | 24 |
| 83794 | 3 | Rotenone, commercial | |
| | 3 | Rubber solvent (naphtha) | |
| 8047674 | 1 | Saccharated iron oxide | |
| 94597 | 1 | Safrole | |
| 152169 | 4 | Schradan | |
| | 2,3 | Selenium and selenium compounds | |
| 7783791 | 3 | Selenium hexafluoride; see Selenium and selenium compounds | |
| 7446084 | 2 | Selenium oxide; see Selenium and selenium compounds | |
| 563417 | 1 | Semicarbazide hydrochloride | |
| 2318185 | 1 | Senkirkine | |
| 136787 | 3 | Sesone; see Sodium 2-(2,4-dichlorophenoxy) ethyl sulfate | |
| 63252 | 2,4 | Sevin; see Carbaryl | |
| 68308349 | 1 | Shale-oils | |
| 1982496 | 2 | Siduron | |
| 7803625 | 3 | Silane | |
| 7631869 | 1,3 | Silica | 25, 35 |
| 7803625 | 3 | Silicon tetrahydride; see Silane | |
| 7440224 | 2,3 | Silver | 3 |
| | 2,3 | Silver compounds | 26 |
| 7761888 | 2 | Silver nitrate; see Silver compounds | |
| 93721 | 2,4 | Silvex; see 2,4,5 TP acid | |
| | 3 | Soapstone | 19 |
| 7440235 | 2 | Sodium | |
| 7631892 | 2 | Sodium arsenate; see Arsenic and arsenic compounds | |
| 7784465 | 2 | Sodium arsenite; see Arsenic and arsenic compounds | |
| 26628228 | 3 | Sodium azide | |
| 10588019 | 2 | Sodium bichromate; see Chromium compounds | |
| 1333831 | 2 | Sodium bifluoride; see Fluoride and fluoride compounds | |
| 7631905 | 2,3 | Sodium bisulfite | |
| 7775113 | 2 | Sodium chromate; see Chromium compounds | |
| 143339 | 2,4 | Sodium cyanide; see Cyanides, inorganic salts | |
| 136787 | 3 | Sodium 2-(2,4-dichlorophenoxy)-ethyl sulfate | |
| 25155300 | 2 | Sodium dodecylbenzene-sulfonate | 9 |
| 7681494 | 2 | Sodium fluoride; see Fluoride and fluoride compounds | |
| 62748 | 3,4 | Sodium fluoroacetate | |
| 16721805 | 2 | Sodium hydrosulfide | |
| 1310732 | 2,3 | Sodium hydroxide | |
| 7681529 | 2 | Sodium hypochlorite | |
| 7681574 | 3 | Sodium metabisulfite | |
| 124414 | 2 | Sodium methylate | |
| 7632000 | 2 | Sodium nitrite | |
| 132274 | 1 | Sodium ortho-phenylphenate | |
| 7558794, 10039324, 10140655 | 2 | Sodium phosphate, dibasic | |
| 778544, 7601549, 10101890, 10361894, 7758294, 10124568 | 2 | Sodium phosphate, tribasic | |
| 10102188 | 2 | Sodium selenite; see Selenium and selenium compounds | |
| | 1 | Soots, tars, and certain mineral oils | |
| 52017 | 1 | Spironolactone | |
| 7745893 | 4 | Starlicide; see 3-Chloro-p-toluidine hydrochloride | |
| 10048132 | 1 | Sterigmatocystin | |
| 7803523 | 3 | Stibine; see Antimony compounds | |
| 8052413 | 3 | Stoddard solvent | |
| 18883664 | 1 | Streptozotocin | |
| 7440246 | 2 | Strontium | |
| 7789062 | 2 | Strontium chromate; see Chromium compounds | |
| 57249 | 2,3,4 | Strychnine | |
| 100425 | 1,2,3 | Styrene, monomer | |
| 96093 | 1 | Styrene oxide | |
| 1395217, 9014011 | 3 | Subtilisins (proteolytic enzymes) | |
| 108305 | 1 | Succinic anhydride | |
| 842079 | 1 | Sudan I | |
| 3118976 | 1 | Sudan II | |
| 95067 | 1 | Sulfallate | |
| 723466 | 1 | Sulfamethoxazole | |
| 3689245 | 3,4 | Sulfotepp; see Tetraethyl dithiopyrophosphate | |
| 7704349 | 2 | Sulfur | |
| 10025679 | 2 | Sulfur chloride; see Sulfur monochloride | |
| 7446095 | 3 | Sulfur dioxide | |
| 2551624 | 3 | Sulfur hexafluoride | |
| 7664939 | 2,3 | Sulfuric acid | |
| 7790945 | 2 | Sulfuric chlorohydrin; see Chlorosulfonic acid | |
| 10025679 | 2,3 | Sulfur monochloride | |
| 5714227 | 3 | Sulfur pentafluoride | |
| 7783600 | 3 | Sulfur tetrafluoride | |
| 2699798 | 3 | Sulfuryl fluoride | |
| 35400432 | 3 | Sulprofos | |
| 950378 | 4 | Surpracide; see O,O-Dimethyl phosphorodithioate, S-ether with 4-(mercaptomethyl)-2-methoxy-$O^2$-1,3,4-thiadiazolin-5-one | |
| 1918189 | 2 | Swep | |
| 8065483 | 4 | Systox; see Demeton | |
| 93765 | 2,3,4 | 2,4,5-T; 2,4,5-Trichloro-phenoxyacetic acid | |
| 6369966, 6369977, 1319728, 3813147 | 2 | 2,4,5-T amines | |
| 2545597, 93798, 61792072, 1928478, 25168154 | 2 | 2,4,5-T esters; 2,4,5-trichlorophenoxyacetic acid esters | |
| 13560991 | 2 | 2,4,5-T salt; acetic acid, 2,4,5-trichlorophenoxy- sodium salt | |
| 93721 | 2,4 | 2,4,5-TP acid; propanoic acid, 2-(2,4,5-trichlorophenoxy)- | |
| 32534955 | 2 | 2,4,5-TP ester; propanoic acid, 2-(2,4,5-trichlorophenoxy)-, isooctyl ester) | |
| 1746016 | 1,2 | TCDD; see 2,3,7,8-Tetrachlorodibenzo-p-dioxin | |
| 78308 | 3 | TCP; see Tri-o-creysl phosphate | |
| 72548 | 2,4 | TDE | |
| 584849 | 3 | TDI; see Tolulene-2,4-diisocyanate | |
| 3689245 | 3 | TEDP; see Tetraethyl dithionopyrophosphate | |
| 107493 | 2,3,4 | TEPP; see Tetraethyl pyrophosphate | |
| 109999 | 3 | THF; see Tetrahydrofuran | |
| 118967 | 3 | TNT; see 2,4,6-Trinitrotoluene | |
| 115866 | 3 | TPP; see Triphenyl phosphate | |
| 14807966 | 1,3 | Talc | 19 |
| | 1 | Tannic acid and tannins | |
| 7440257 | 2,3 | Tantalum | 3 |
| 1314610 | 3 | Tantalum oxide | |
| 10028167 | 3 | Tellurium | 3 |
| | 3 | Tellurium compounds | |
| 7783804 | 3 | Tellurium hexafluoride; see Tellurium compounds | |
| 3383968 | 3 | Temephos; see Tetramethyl O, O′-thio-di-p-phenylene phosphorothiate | |
| 8001501 | 1 | Terpene polychlorinates (Strobane6®) | |
| | 3 | Terphenyls | |
| 58220 | 1 | Testosterone (and its esters) | |
| 315377 | 1 | Testosterone enanthate | |
| 79276 | 3 | 1,1,2,2-Tetrabromoethane; see Acetylene tetrabromide | |
| 1746016 | 1,2 | 2,3,7,8-Tetrachlorodibenzo-p-dioxin | |
| 76119 | 3 | 1,1,1,2-Tetrachloro-2, 2-difluoroethane | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 72548 | 2 | Tetrachlorodiphenylethane; see TDE | |
| 603206 | 1 | 1,1,1,2–Tetrachloroethane | |
| 76120 | 3 | 1,1,2,2–Tetrachloro–1,2– difluoroethane (FC–112) | |
| 79345 | 1,2,3 | 1,1,2,2–Tetrachloroethane; see Acetylene tetrachloride | |
| 127184 | 2,3,5 | Tetrachloroethylene; see Perchloroethylene | |
| 56235 | 2,3 | Tetrachloromethane; see Carbon tetrachloride | |
| 1335882 | 2,3 | Tetrachloronaphthalene | |
| 961115 | 1 | Tetrachlorvinphos | |
| 3689245 | 3,4 | Tetraethyl dithiopyrophosphate (Sulfotepp) | |
| 78002 | 2 | Tetraethyl lead; see Lead compounds | |
| 107493 | 2,3,4 | Tetraethyl pyrophosphate | |
| 78104 | 3 | Tetraethyl silicate; see Ethyl silicate | |
| 109999 | 3 | Tetrahydrofuran | |
| 110918 | 3 | Tetrahydro–4H–1–4–oxazine; see Morpholine | |
| 75741 | 3 | Tetramethyl lead; see Lead compounds | |
| 681845 | 3 | Tetramethyl silicate; see Methyl silicate | |
| 3383968 | 3 | Tetramethyl 0,0′–thio–di–p–phenylene phosphorothioate (temephos) | |
| 3333526 | 3 | Tetramethyl succinonitrile (decomposition product of 2,2′–azobisisobutyronitrile) | |
| 137268 | 3 | Tetramethyl thiuran disulfide; see Bis(dimethylthiocarbamoyl) disulfide | |
| 509148 | 3 | Tetranitromethane | |
| 7722885 | 3 | Tetra sodium pyrophosphate | |
| 479458 | 3 | Tetryl | |
| 7440280 | 2 | Thallium | 3 |
| | 2,3 | Thallium compounds | |
| 10031591, 7446186 | 2 | Thallium sulfate; see Thallium compounds | |
| 298022 | 4 | Thimet; see Phorate | |
| 62555 | 1 | Thioacetamide | |
| 28249776 | 4 | Thiobencarb | |
| 96695 | 3 | 4,4′–Thiobis(6–tert–butyl–m–cresol) | |
| 115297 | 2 | Thiodan; see Endosulfan | |
| 139651 | 1 | 4,4′–Thiodianiline | |
| 68111 | 3 | Thioglycolic acid | |
| 7719097 | 3 | Thionyl chloride | |
| 52244 | 1 | Thiotepa; see Tris(1–aziridinyl) phosphine sulphide | |
| 141902 | 1 | Thiouracil | |
| 62566 | 1 | Thiourea | |
| 137268 | 3 | Thiram; see Bis(dimethylthiocarbamyl) disulfide | |
| 7440315 | 2,3 | Tin | 3 |
| | 3 | Tin compounds | |
| 7440326 | 2 | Titanium | |
| 1836755 | 4 | Tok; see 2,4–Dichlorophenyl–p–nitrophenyl ether | |
| 119937 | 1 | o–Tolidine; see 3,3′–Dimethylbenzidine | |
| 108883 | 2,3 | Toluene | |
| 584849 | 1,3 | Toluene–2, 4–diisocyanate | |
| 26471625, 91087, 26471625, 584849 | 1 | Toluene diisocyanates | |
| 108441 | 3 | m–Toluidine | |
| 106490 | 3 | p–Toluidine | |
| 95534 | 3 | o–Toluidine; see o–Methylaniline | |
| 636215 | 1 | ortho–Toluidine; hydrochloride | |
| 108883 | 2,3 | Toluol; see Toluene | |
| 10311849 | 4 | Torak; see Dialifor | |
| 8001352 | 1,2,3,4 | Toxaphene | |
| 14567738 | 3 | Tremolite | |
| 299752 | 1 | Treosulfan | |
| 299752 | 1 | Treosulphan; see Treosulfan | |
| 75252 | 3 | Tribomomethane; see Bromoform | |
| 126738 | 3 | Tributyl phosphate | |
| 78488 | 4 | S,S,S–Tributyl phosphoro–trithioate | |
| 150505 | 4 | S,S,S–Tributyl phosphorotrithioite | |
| | 4 | Tributyltin, coatings containing | |
| 52686 | 2 | Trichlorfon | |
| 76039 | 3 | Trichloroacetic acid | |
| 120821 | 2,3 | 1,2,4–Trichlorobenzene; see Chlorinated benzenes | |
| 50293 | 3 | 1,1,1–Trichloro–2–2,bis (p–chlorophenyl) ethane; see DDT | |
| 72435 | 3 | 1,1,1–Trichloro–2,2–bis (p–methoxphenyl)–ethane; see Methoxychlor | |
| 79005 | 1,2,3 | 1,1,2–Trichloroethane | |
| 71556 | 2,3 | 1,1,1–Trichloroethane; see Methyl chloroform | |
| 79016 | 3 | Trichloroethene; see Trichloroethylene | |
| 79016 | 1,2,3 | Trichloroethylene | |
| 75694 | 3 | Trichlorofluoromethane; see Fluorotrichloromethane | |
| 67663 | 2,3 | Trichloromethane; see Chloroform | |
| 594423 | 3 | Trichloromethanethiol; see Perchloromethyl mercaptan | |
| 1321659 | 2,3 | Trichloronaphthalene | |
| 76062 | 3 | Trichloronitromethane; see Chloropicrin | |
| 88062 | 2 | 2,4,6–Trichlorophenol; see Trichlorophenols | |
| 25167822, 15950660, 933788, 933755, 95954, 609198, 88062 | 1,2 | Trichlorophenols | |
| 136254 | 2 | 2–(2,4,5–Trichlorophenoxy) ethyl 2,2–dichloropropionate (Erbon) | |
| 96184 | 3 | 1,2,3–Trichloropropane | |
| 76131 | 2,3 | 1,1,2–Trichloro–1,2, 2–trifluoroethane (FC–113) | |
| 78308 | 3 | Tri–o–cresyl phosphate | |
| 13121705 | 3 | Tricyclohexyltin hydroxide; see Tin compounds | |
| 27323417 | 2 | Triethanolamine dodecylbenzenesulfonate | 9 |
| 121448 | 2,3 | Triethylamine | |
| 1954285 | 1 | Triethylene glycol diglycidyl ether | |
| 75638 | 3 | Triflorobromomethane; see Bromotrifluoromethane | |
| 1582098 | 1,2 | Trifuralin | |
| 552307 | 3 | Trimellitic anhydride | |
| 75503 | 2,3 | Trimethylamine | |
| 137177 | 1 | 2,4,5–Trimethylaniline | |
| | 3 | Trimethylbenzene (all isomers) | |
| 78591 | 3 | 3,5,5–Trimethyl–2–cyclohexene–1–one; see Isophorone | |
| 121459 | 3 | Trimethyl phosphite | |
| 88891 | 3 | 2,4,6–Trinitrophenol; see Picric acid | |
| 479458 | 3 | 2,4,6–Trinitrophenylmethylnitramine; see Tetryl | |
| 118967 | 3 | 2,4,6–Trinitrotoluene | |
| 78308 | 3 | Tri–ortho–cresyl phosphate; Tri–o–cresyl phosphate | |
| 603349 | 3 | Triphenylamine | |
| 115866 | 3 | Triphenyl phosphate | |
| 68768 | 1 | Tris(aziridinyl)–para–benzoquinone; (Triaziquone) | |
| 52244 | 1 | Tris(1–aziridinyl)phosphine sulfide | |
| 51183 | 1 | 2,4,6–Tris(1–aziridinyl)–s–triazine | |
| 38571732 | 1 | 1,2,3–Tris(chloromethoxy)propane | |
| 126727 | 1 | Tris(2,3–dibromopropyl) phosphate | |
| 786196 | 4 | Trithion; see Carbophenothion | |
| 62450060 | 1 | Trp–P–1 (Tryptophan–P–1) | |
| 62450071 | 1 | Trp–P2 (Tryptophan–P–2) | |
| 72571 | 1 | Trypan blue (commercial grade) | |
| 7440337 | 2,3 | Tungsten, Tungsten compounds | 3,34 |
| 8006642 | 3 | Turpentine | |
| 66751 | 1 | Uracil mustard | |
| 7440611 | 2,3 | Uranium | 3,34 |
| | 2,3 | Uranium compounds | |
| 541093 | 2 | Uranyl acetate; see Uranium compounds | |
| 10102064 | 2 | Uranyl nitrate; see Uranium compounds | |
| 51796 | 1 | Urethane | |
| 8030306 | 3 | VM & P (Varnish Makers & Painters) naphtha | |
| 110623 | 3 | Valeraldehyde | |
| 7440622 | 2 | Vanadium | |
| 1314621 | 2,3 | Vanadium pentoxide | 3 |
| 27774136 | 2 | Vanadyl sulfate | |
| 62737 | 2 | Vapona; see Dichlorvos | |
| 108054 | 2,3 | Vinyl acetate | |
| 100425 | 2 | Vinylbenzene; see Styrene, monomer | |
| 593602 | 1,3 | Vinyl bromide | |
| 75014 | 1,2,3 | Vinyl chloride | |
| 107131 | 2,3 | Vinyl cyanide; see Acrylonitrile | |
| 100403 | 1 | 4–Vinylcyclohexene | |

| CAS No. | Source | Substance | Footnotes |
|---|---|---|---|
| 106876 | 1,3 | Vinyl cyclohexene dioxide | |
| 106876 | 1 | 4–Vinyl–1–cyclohexene diepoxide; see Vinyl cyclohexene dioxide | |
| 75354 | 1,2,3 | Vinylidene chloride | |
| 25013154 | 3 | Vinyltoluene | |
| 79005 | 1 | Vinyl trichloride; see 1,1,2–Trichloroethane | |
| 81812 | 3 | Warfarin | |
| 13983170 | 1 | Wollastonite | |
| 1330207, 95476, 106423, 108383 | 2,3 | Xylene, all isomers | |
| 1477550 | 3 | m–Xylene–a′,a′–diamine | |
| 1300716 | 2 | Xylenol | |
| 1300738 | 3 | Xylidine | |
| 95476 | 2,3 | Xylol; see Xylene, all isomers | |
| 131793 | 1 | Yellow OB | |
| | 3 | Yttrium compounds | |
| 17924924 | 1 | Zearalenone | |
| 7440666 | 2 | Zinc | 3 |
| 557346 | 2 | Zinc acetate; see Zinc compounds | |
| 14639975, 14639986, 52628258 | 2 | Zinc ammonium chloride; see Zinc compounds | |
| 1332076 | 2 | Zinc borate; see Zinc compounds | |
| 7699458 | 2 | Zinc bromide; see Zinc compounds | |
| 3486359 | 2 | Zinc carbonate; see Zinc compounds | |
| 7646857 | 2,3 | Zinc chloride; see Zinc compounds | |
| 1350659 | 3 | Zinc chromate; see Chromium compounds | |
| | 2,3,4 | Zinc compounds | 28 |
| 557211 | 2 | Zinc cyanide; see Cyanides, inorganic salts | |
| 7783495 | 2 | Zinc fluoride; see Zinc compounds | |
| 557415 | 2 | Zinc formate; see Zinc compounds | |
| 7779864 | 2 | Zinc hydrosulfite; see Zinc compounds | |
| 7779886 | 2 | Zinc Nitrate; see Zinc compounds | |
| 1314132 | 3 | Zinc oxide fume; see Zinc compounds | |
| 127822 | 2 | Zinc phenolsulfonate; see Zinc compounds | |
| 1314847 | 2,4 | Zinc phosphide; see Zinc compounds | |
| 16871719 | 2 | Zinc silicofluoride; see Zinc compounds | |
| 7733020 | 2 | Zinc sulfate; see Zinc compounds | |
| 12122677 | | Zineb | |
| 7440677 | 2 | Zirconium | |
| 7440677 | 2,3 | Zirconium compounds, as Zr | |
| 13746899 | 2 | Zirconium nitrate; see Zirconium compounds | |
| 16923958 | 2 | Zirconium potassium fluoride; see Zirconium compounds | |
| 14644612 | 2 | Zirconium sulfate; see Zirconium compounds | |
| 10026116 | 2 | Zirconium tetrachloride | |

## FOOTNOTES FOR HAZARDOUS SUBSTANCE LIST

1. Refers to solutions greater than or equal to 10%. Exempt when present in food or beverages, such as vinegar, apple cider, and wine, regardless of concentration.
2. Refers to water–soluble salts only; all other salts are exempt.
3. An MSDS must be provided under the following circumstances:

a) The metal is supplied as a fine powder.

b) The metal is in welding or brazing rods.

c) The metal may be melted with the generation of toxic fume.

d) Under normal use, toxic dust or fume is likely to be generated by any manufacturing process.

4. Exempt when in bonded form or when antimony compounds cannot be released due to cutting, grinding, heating, etc.
5. Except:

a) Exterior and interior coatings and laminating resins containing encapsulated asbestos fibers within such products.

b) Cold process asphalt roof coatings.

c) Non–friable encapsulated products such as floor tiles.

6. Any liquids; and products that could give rise to asphalt fume under normal conditions are included. Mechanical breakup of hardened asphalt surfaces is exempt.
7. Exempt when used in foods and feeds as a preservative.
8. Exempt except when present as free crystal/powder.
9. Exempt when in solution.
10. Exempt when in form where exposure to dust cannot occur.
11. Products that could give rise to coal tar pitch volatiles during normal use are included.
12. Exempt when part of a cured epoxy or rubber.
13. Refers to solutions greater than or equal to 25%. Beverage alcohol (as defined by Sections 23004 and 23005 of the California Alcoholic Beverage Control Act) in any concentration is exempt.
14. Exempt except when vapors or particulates are or can be formed due to work practices or procedures.
15. Exempt except when present as a dust.
16. Exempt when used as fuel.
17. Exempt except when inhalable dust and/or particulates are present or are generated through use of the product.
18. Refers to the water–soluble salts only; exempt when mixed in food or animal feed.
19. Exempt except when inhalable dust is present or can be generated through use.
20. Exempt when in mixture, suspension, or where inhalable dust or particles are not present or cannot be formed.
21. Exempt except where mineral oil mists can be generated in the ordinary use of the products, e.g. cutting oils
22. Occupational sources of ozone include, but are not limited to:

a) during oxidizing process of fine organic chemicals production (primarily ozolaic acid);

b) during operations involving high–intensity UV light (plasma torch operations, glass blowing, hot metal operations, photoengraving operations, use of mercury vapor lamps, direct copying machines, projecting equipment);

c) during operations involving high voltage electrical equipment (spectrographic and fluorometric apparatus, electroplating operations, high–volt linear accelerators, and electrostatic precipitators);

d) during operations involving ozonizing process in treatment of water, industrial waste, and sewage; during air purification;

e) during drilling, cutting, and welding operations utilizing laser radiation;

f) during bleaching operations (textiles, pulp, paper, waxes, starch, sugar, Teflon, and synthetic fibers), refining of mineral oils and their derivatives, processing of perfumes, vanillin, and camphor, aging and drying operations (wood, wines, whiskeys, varnishes, and printing inks);

g) during food preserving operations for mold and bacteria control;

h) during welding operations using inert gas shielded arc welding devices, bare wire arc welding; and

i) during manufacturing production of ozone.

23. Includes benzanthracenes, benzopyrenes, benzofluoranthrene, chrysenes, dibenzanthracenes, and indenopyrenes.
24. Refers to smoke and fume products given off during soldering.
25. Exempt except when inhalable particulates are present or can be generated.
26. Silver compounds existing in stable emulsions or suspensions, as in photographic film, are exempt.
27. Applicable to cotton fiber for use in industries or operations covered by General Industry Safety Order 5219, Cotton Dust.
28. Exempt when present in motor oils at 2.5% or below. Zinc oxide is exempt except when present as dust or when generated as a fume. Zinc stearate is exempt except when present as dust.
29. Refers to solutions greater than or equal to 4%.
30. Refers to solutions greater than or equal to 3%.
31. Refers to any mixture containing 0.1% or greater of this substance.
32. Refers to any mixture containing 0.02% or greater inorganic arsenic.
33. Refers to any mixture containing 0.1% or greater EDB.
34. Exempt when encapsulated in a capsule which meets the definition of "Special Form Materials" prescribed in 49 CFR 173.403(z).
35. Applies to silica sand and silica flour, but naturally occurring dirt and sand which has not been increased in silica concentration by beneficiation are exempt.
36. Except butyl benzyl phthalate.
37. Exempt except when crystalline powder is being manufactured or being used.
38. Fibrous glass is a mechanical irritant. There is no present scientific evidence as to the existence of any other adverse health effect.
39. Except Copper phthalocyanine crudes and pigments.

NOTE: Authority cited: Sections 54, 55 and 6380, Labor Code; and 8 CCR Section 337. Reference: Sections 6380, 6380.5, 6382 and 6383, Labor Code.

HISTORY

1. New section (including Appendix A) filed 8–25–82; effective thirtieth day thereafter (Register 82, No. 35).
2. Amendment of Hazardous Substances List filed 10–7–82; effective thirtieth day thereafter (Register 82, No. 41)
3. Amendment of Hazardous Substances List and Appendix A filed 5–29–85; effective upon filing pursuant to Government Code section 11346.2(d) (Register 85, No. 24).
4. Editorial correction of Appendix A filed 6–12–85 (Register 85, No. 24).
5. Editorial correction of Appendix A column headings (Register 91, No. 23).
6. Repealer of subsection (b) and Appendix A, subsection relettering, new subsection (b)(3), new FOOTNOTE 39 and amendment of Hazardous Substances List and NOTE filed 2–16–93; operative 3–18–93 (Register 93, No. 8).

## Article 6. Workers' Compensation Loss Control Consultation Services, Annual Health and Safety Loss Control Plan—Requirements and Procedures

### § 339.1. Scope and Application.

This Article applies to all insurers and insureds as defined in section 339.3.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New article 6 and section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.
2. New article 6 and section refiled 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–26–94 order transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

### § 339.2. Effective Dates and Start–Up Procedures.

(a) This article shall take effect immediately, except for section 339.4 which shall take effect on April 1, 1994.

(b) Provisional Certification Periods.

(1) Provisional certification shall be granted by the Division for a period of 120 days upon receipt by the Loss Control Consultation Certification Unit of an application which complies, at a minimum, with the requirements of 339.7(b) and (c)(1) through (3).

(2) The Division may extend an insurer's provisional certification for an additional period of up to 120 days if the volume of applications received results in the Division's inability to process the insurer's application within the initial 120 day period.

(c) Certification Periods.

(1) The first period of certification shall include the period of provisional certification and shall last for one year unless extended by the Division for purposes of evenly distributing the workload associated with the ongoing processing of applications for recertification.

(2) All subsequent certifications shall last for a period of one year.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.
2. New section refiled with amendment of section heading and text 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–26–94 order including amendment of subsection (a) transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

### § 339.3. Definitions.

(a) "Annual Plan" means the insurer's annual health and safety loss control plan.

(b) "Budget" means a description of anticipated expenditures to be incurred in providing loss control consultation services to targeted employers as described by the insurer's annual plan, including the amount of funds allocated, the categories of services to be funded, and the amount of funding budgeted for each category.

(c) "Director" means the Director of the Department of Industrial Relations or an authorized representative.

(d) "Division" means the Division of Occupational Safety and Health.

(e) "Employer" means any insured.

(f) "Insured" means any person or entity other than a person or entity which has received a certificate of consent to self–insure pursuant to Labor Code Section 3700(b), which has secured workers' compensation insurance from an insurer.

(g) "Insurer" means any entity licensed by the California Department of Insurance to write workers' compensation insurance coverage.

(h) "Loss control" means reduction of exposure to workers' compensation losses and control of significant preventable health and safety hazards to workers.

(i) "Loss control consultation services" means assistance in recognizing, evaluating, and controlling significant preventable health and safety hazards and other potential sources of workers' compensation losses. Loss control consultation services consist of services provided by an insurer only to those employers to which the insurer has extended workers' compensation coverage.

(j) "On site consultation" means observation of an insured's work operations to determine the existence of significant preventable health and safety hazards, including, where appropriate, monitoring of hazardous physical, chemical, and biological agents.

(k) "Significant preventable health and safety hazards" means those hazards which are capable of being controlled by the employer and which have the potential to substantially affect the frequency and severity of workplace injuries and illnesses and workers' compensation losses.

(l) "Targeted employer" means an employer selected by the insurer to receive loss control consultation services, based on the criteria set forth in section 339.11. This term does not include any part of the employer's operations which is outside of California.

**NOTE:** Where the employer has more than one worksite, "targeted employer" means only those worksites selected by the insurer to receive loss control consultation services based on the criteria set forth in section 339.11

(m) "Workers' compensation insurance" means only that workers' compensation insurance provided under the laws and regulations of the State of California. This term does not include excess reinsurance or any form of homeowner's insurance.

(n) "Workplace survey" means an evaluation of an insured's work operations which can consist of a comprehensive on–site consultation or any other procedure which effectively identifies significant preventable health and safety hazards to workers.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.
2. New section refiled with amendments 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–26–94 order including amendment of subsection (l) transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

### § 339.4. Provision of Loss Control Consultation Services.

(a) Every insurer issuing or maintaining a workers' compensation insurance policy covering an employer's current or future operations shall maintain or provide loss control consultation services certified by the Division in accordance with this Article.

**NOTE:** Insurers may elect to provide all or part of their loss control consultation services through another entity, e.g., consultants, insurance groups or health care organizations, to the extent that the services to be provided meet the requirements of this section. However, such an election shall not alter the insurer's responsibility to maintain certification and to direct and control the provision of all loss control consultation services required by this Article.

(b) At the time the insurance policy is issued, and annually thereafter, the insurer shall provide to each of its insureds a written description of the insurer's loss control consultation services, including a notice stating that the services are available at no additional charge to the insured. The following statement shall be included with the notice: "Workers' compensation insurance policyholders may register comments about the in-

surer's loss control consultation services by writing to: State of California, Department of Industrial Relations, Division of Occupational Safety and Health, P.O. Box 420603, San Francisco, CA 94142."

(c) The insurer shall not charge the employer any fee in addition to the insurance premium for the provision of loss control consultation services.

(d) Targeted Employers.

(1) The insurer shall provide loss control consultation services to all targeted employers, which, at a minimum, shall include the following:

(A) Effective evaluation of the employer's operations, including:

1. Comprehensive on–site consultation for each targeted employer identified by the insurer's annual plan;

2. Discussions with management and, with permission of the employer, non–management personnel; and

3. Review with appropriate personnel of relevant records, including, but not limited to, the employer's log and summary of injuries and illnesses maintained pursuant to section 14301 and the employer's section 3203 injury and illness prevention program;

(B) Identification of the factors most related to the losses experienced by the employer, including:

1. First aid and other emergency or post–injury response procedures;

2. Workplace health and safety hazards;

3. Management policy and practices related to loss control;

4. The effectiveness with which company loss control policy is communicated among management personnel and between management and non–management personnel;

5. The effectiveness of training;

6. The extent and nature of worker participation in health and safety promotion efforts;

7. The adequacy of recordkeeping; and

8. The adequacy of the employer's section 3203 injury and illness prevention program.

(C) Formulation of recommended loss control measures, including specification of those critical to reduction of the employer's losses or potential for losses;

(D) A written report detailing the consultation provided, the findings of the consultation, and all loss control measures formulated pursuant to subsection (d)(1)(C); and

(E) Ongoing evaluation of the targeted employer to determine the impact of the consultation on the employer's loss control experience.

(2) The insurer shall maintain records of all loss control consultation services provided to targeted employers for 4 years and shall make those records available to the Division upon request.

(e) Non–targeted Employers. Loss control consultation services available upon request to non–targeted employers shall, at a minimum, include the following:

(1) A workplace survey, including discussions with management, and, where appropriate, nonmanagement personnel with permission of the employer;

(2) Review of injury records with appropriate personnel; and

(3) Development of a plan to improve the employer's health and safety loss control experience, which shall include, where appropriate, modifications to the employer's section 3203 injury and illness prevention program.

EXCEPTION: An insurer may, but is not required, to provide loss control consultation services to any insured whose place of employment does not pose significant preventable health and safety hazards to workers. Criteria for determining that a place of employment does not pose significant preventable health and safety hazards must be clearly identified in the annual plan.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 4–1–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.

2. New section refiled with amendment of subsections (a), (b), and (d) 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.

3. Certificate of Compliance as to 4–26–94 order transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

## § 339.5. Requirements for Certification and Recertification of Loss Control Consultation Services.

(a) Certification lasts for a period of one year, except as specified by section 339.2. To apply for certification or recertification, an insurer must submit a completed application and all supporting documentation as required by section 339.7.

(b) To qualify for certification and recertification the insurer shall demonstrate that:

(1) The insurer has developed and is prepared to implement an annual plan which meets the requirements of section 339.6; and

(2) The insurer has the capability to deliver effective loss control consultation services meeting the requirements of section 339.4. Such a demonstration shall include, but not be limited to, each of the following:

(A) Identification of each entity supplying loss control consultation personnel, if consultation services are to be provided by personnel other than employees of the insurer.

(B) A description of the categories, the number in each category, and the individual qualifications, including professional licenses and certification, of the personnel who will be providing loss control consultation services.

(C) A detailed description of the services to be provided by each of the personnel and the types of industrial activities and settings with which their services will be associated, together with an explanation of how these personnel are qualified to address these activities and settings.

(D) An estimate of:

1. The number of on–site consultations the insurer's loss control consultation personnel will provide for the coming certification year, specifying what portion will consist of consultations to targeted employers;

2. The average number of hours to be spent on each on site consultation, not including preparation and travel time; and

3. The number of workplace surveys not consisting of on–site consultation to be provided for the coming certification year, including the average amount of time to be spent per survey.

(c) To maintain certification, the insurer shall notify the Division of any substantial change in the information provided to obtain certification from the Division and shall cooperate with any audit or request for information by the Division to determine the effectiveness of the loss control consultation services provided by the insurer.

(d) The Division shall provide written notice to the insurer of any finding of deficiency related to the loss control consultation services audited by the Division, and any corrective actions deemed necessary to retention of the insurer's certification by the Division.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.

2. New section refiled with amendment of subsection (b) and (c) 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.

3. Certificate of Compliance as to 4–26–94 order including amendment of subsection (b)(1) transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

## § 339.6. Annual Health and Safety Loss Control Plan.

(a) Every insurer seeking certification or recertification shall submit an annual plan as required by section 339.7(c)(5).

(b) The annual plan shall detail the insurer's program objectives for delivering loss control consultation services to those insureds selected as targeted employers, and shall include, at a minimum, the following:

(1) A budget;

(2) The methodology used by the insurer to select targeted employers;

**NOTE:** Section 339.11 contains guidelines for selecting targeted employers.

(3) One–year and three–year loss reduction goals for targeted employers;

(4) Size, type, and identity of each targeted employer for the coming year; and

(5) A description of the loss control consultation services provided to targeted employers during the previous year, including:

(A) Identity of targeted employers served and a summary of the services provided to each;

(B) Total expenditures for all targeted employers served;

(C) Evaluation of the effectiveness of the consultations provided, including the extent to which the previous year's loss reduction goals were met for targeted employers and an analysis of any failure to meet such goals; and

(D) A list of all employers to whom loss control consultation services have been provided through an entity other than the insurer or the insurance group to which the insurer belongs. The list shall include the identities and qualifications of the personnel who provided the consultation services.

(c) The plan shall demonstrate that the insurer has reliably identified as targeted employers those of its insureds who have the greatest worker's compensation losses and most significant preventable health and safety hazards, and that the insurer's loss control consultation services will effectively serve the needs of targeted employers.

(d) The Division shall maintain the confidentiality of all information provided by the plan, except for aggregate statistical data.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.
2. New section refiled with amendment of subsection (c) 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–26–94 order transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

## § 339.7. Application for Certification or Recertification of Loss Control Consultation Services.

(a) Applications may be obtained from the Loss Control Consultation Services Certification Unit of the Division.

(b) The application (Form LCC–1; 10–94) shall be lodged with the Loss Control Consultation Services Certification Unit and shall be accompanied by the required application fee.

(c) The application shall provide, be accompanied by, or be supplemented with the following items:

(1) Names under which the applicant is authorized to write workers' compensation insurance;

(2) Name and address of the insurer's employee directly responsible for administering the insurer's loss control consultation services;

(3) Proof of authorization from the California Department of Insurance to write workers' compensation insurance within the State of California;

(4) Documentation demonstrating the insurer's capability to deliver loss control consultation services as described by section 339.5(b)(2);

(5) A copy of the insurer's annual plan; and

(6) Any additional information requested by the Division, if reasonably necessary to evaluate the insurer's suitability for certification consistent with the requirements of this Article.

(d) Within 30 business days of receipt of an application for certification, the Division shall inform the applicant in writing either that the application is either complete and accepted for filing, or that the application is deficient and requires supplementation with additional information or documentation.

(1) An application shall be deemed complete if it is in compliance with the requirements of this section.

(2) A notice that the application is deficient shall explain what specific information or documentation is required to complete the application.

**NOTE:** If the volume of applications received results in the Division's inability to process the insurer's start–up application for certification in compliance within the 30–business–day period, the Division may extend the period for up to 120 days. Where such an extension is made by the Division, the insurer's period of provisional certification shall be deemed extended by an equal amount of time pursuant to section 339.2(b).

(e) Within 30 business days of the date of acceptance for filing of a completed application, the Division shall issue to the applicant:

(1) A Notice of Certification which includes the date of expiration of the certification and specifies any conditions which attach to retention of the certification; or

(2) A Notice of Denial of Certification, accompanied by a written explanation of the reasons for the denial.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.
2. New section refiled with amendments 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–26–94 order including amendment of subsections (b), (c)(3) and (d) transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

## § 339.8. Annual Collection of the Workers' Occupational Safety and Health Fund Fees.

(a) The Director designates the Commission on Health and Safety and Workers' Compensation to collect the fee required by Labor Code Section 6354.7 for the purpose of establishing and maintaining a workers' occupational safety and health training and education program and insurance loss control services coordinator.

(b) On or before April 1 of each year, each insurer subject to Labor Code Section 6354.5 shall pay to the Commission on Health and Safety and Workers' Compensation the workers' occupational safety and health training and education program fee required by Labor Code Section 6354.7. All fees collected pursuant to this section shall be deposited in the Workers' Occupational Safety and Health Education Fund, as provided in Section 6354.7 of the Labor Code.

(c) The annual fee required under this section shall be the greater of one hundred dollars ($100) or 0.0286 percent of paid workers' compensation indemnity as reported for the previous calendar year to the designated rating organization for the analysis required under subdivisions (b) and (c) of Section 11759.1 of the Insurance Code.

(d) Along with the payment required by this section, each insurer shall submit:

(1) A copy of the insurer's response to the annual "Call for California Workers' Compensation Experience" for the preceding calendar year.

(2) A summary report, on form CHSWC–1 "Workers' Occupational Safety and Health Fund Fee Report Form. (Rev.1/03)" The Commission shall provide a copy of the form CHSWC–1 to each insurer subject to Labor Code Section 6354.5 not later than February 1 of the year in which the fee is collected. The form CHSWC–1 shall include the following information:

(A) the name of the insurer submitting the report, including a list of all insurer names used to write workers' compensation insurance in California. For each insurer listed, a copy of each insurer's Certificate of Authority, issued by the California Department of Insurance, to write workers' compensation insurance shall be submitted with the report as an attachment;

(B) the name and contact information for a company officer to be contacted concerning the insurer's loss control services or the workers' occupational safety and health training and education program;

(C) the amount of paid indemnity as reported by the insurer for the previous calendar year to the Workers' Compensation Insurance Rating Bureau in response to the annual "Call for California Workers' Compensation Experience;" and,

(D) the amount of the fee being paid by the insurer.

NOTE: Copies of the form CHSWC–1 may be obtained upon request from the Commission or downloaded from the Commission's web site at: http://www.dir.ca.gov/CHSWC/.

(e) A group of insurers under the same management, direction and control may elect to submit a single consolidated payment so long as the information required by the Commission is separately provided for each insurer.

NOTE: Authority cited: Section 6354.7, Labor Code; and section 11759.1, Insurance Code. Reference: Section 6354.5, Labor Code; and Section 11759.1, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.
2. New section refiled with amendments 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–26–94 order transmitted to OAL and filed 10–6–94 (Register 94, No. 40).
4. Amendment of section heading, repealer and new section and amendment of NOTE filed 1–21–2003; operative 1–21–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 4).

## § 339.8.1. Workers' Occupational Safety and Health Fund Fee Report Form.

State of California
Department of Industrial Relations
Commission on Health and Safety and Workers' Compensation
WORKERS' OCCUPATIONAL SAFETY AND HEALTH
FUND FEE REPORT FORM

- LABOR CODE SECTION 6354.7 REQUIRES ALL WORKERS' COMPENSATION INSURERS TO FUND THE "WORKERS' OCCUPATIONAL SAFETY AND HEALTH EDUCATION FUND" BY PAYING AN ANNUAL FEE OF THE GREATER OF $100 OR A PERCENTAGE OF THEIR PAID WORKERS' COMPENSATION INDEMNITY AS REPORTED FOR THE PRIOR CALENDAR YEAR ON THE "CALL FOR CALIFORNIA WORKERS' COMPENSATION EXPERIENCE" FILED WITH THE WORKERS' COMPENSATION INSURANCE RATING BUREAU OF CALIFORNIA.
- PLEASE COMPLETE AND SUBMIT THIS REPORT FORM WITH THE REQUIRED FEES AND ATTACHMENTS TO THE ADDRESS LISTED BELOW. PAYMENT IS DUE ON OR BEFORE APRIL 1 OF THIS YEAR.

**1. NAME OF INSURER(S):** List all insurer names used to write workers' compensation insurance in California. For each insurer listed, attach a copy of each insurer's Certificate of Authority, issued by the California Department of Insurance, to write workers' compensation insurance. (Attach additional pages if needed.)

_____

_____

_____

_____

**2. COMPANY OFFICER:** Name of the person with the authority to establish the program to provide loss control consultation services in California, and authorize the payment of fees into the Fund.

| Signature of Company Officer: | Date: |
|---|---|
| Printed Name of Officer: | Title: |

*(The address given below will be only address used for all future correspondence from this office.)*

Name of Company

Address:

| Phone Number: | Fax Number: | E-Mail Address: |
|---|---|---|

**3. FEE CALCULATION:** Indicate the total amount of Paid Indemnity as reported for the prior calendar year on the "Call for California Workers' Compensation Experience" filed with the Workers' Compensation Insurance Rating Bureau of California for each insurer listed above, and calculate the fees due.

***Include a copy of the prior year's Calendar Year "Call" for each insurer listed on this application.***

Calendar Year
Paid Indemnity $ _____ X 0.0286% =

Enter Total
Fee Here: → $*

*Attach a check payable to *Workers' Occupational Safety and Health Education Fund* for the greater of $100.00 or .0286 percent of the amount listed above. [Example: $43,060,531.00 (PI) x 0.000286 = $12,315.31 (Fee)]

**4. SUBMISSION:** Please mail this completed report with the "Call(s)", the Certificate(s) of Authority, and fees to the following **address before April 1:**

Commission on Health and Safety and Workers' Compensation
*Attention: WOSHEF*
P. O. Box 420603
San Francisco, CA 94102

**If you have questions regarding this fee or report process, call (415) 703–4220 or e-mail us at chswc@hq.dir.ca.gov.**

CHSWC–1 (Rev. 1/03)

NOTE: Authority cited: Section 6354.7, Labor Code; and Section 11759.1, Insurance Code. Reference: Section 6354.5, Labor Code; and Section 11759.1, Insurance Code.

HISTORY
1. New section filed 1–21–2003; operative 1–21–2003 pursuant to Government Code section 11343.4 (Register 2003, No. 4).

### § 339.9. Denial of Certification or Recertification.

(a) The Division shall deny certification or recertification if the insurer does not satisfy the requirements of this article.

(b) An applicant denied certification may:

(1) Reapply by submitting a new application together with a new application fee; or

(2) Appeal for reconsideration to the Director.

(c) Any applicant who wishes to appeal a denial of certification shall lodge with the Division, within 10 working days of receipt of the Notice of Denial, a written notice of the applicant's intent to appeal.

(1) The Director shall hold a hearing, at the Division's headquarters offices or such other location as the Director may designate, within five working days of the appeal.

(2) At the hearing, the insurer shall have the burden of establishing qualification for certification.

(d) The Director shall issue a decision within 10 days of the hearing. The Director's decision shall be final. A final decision by the Director may not be appealed except as provided for by law.

(e) The Insurance Commissioner shall be notified of every final decision by the Director to deny certification.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.
2. New section refiled with amendment of subsection (c)(1) 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–26–94 order transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

### § 339.10. Revocation, Suspension or Attachment of Conditions to Certification.

(a) The Division may at any time, upon a showing of good cause and after notice and an opportunity to be heard, revoke, suspend, or attach conditions to the retention of, any certification issued pursuant to this article. Good cause shall be deemed to exist if the Division establishes that the insurer has substantially failed to meet or comply with the requirements of this article.

(b) Notice of the Division's intent to take any adverse action with respect to a certification shall be in writing and served at least fifteen days in advance of the hearing. Service shall be deemed complete if notice of the hearing is sent by certified mail or hand delivered to the address shown on the application form. The notice shall specify the action intended to be taken by the Division and the reasons for the action in sufficient detail to allow the insurer to prepare for the hearing.

(c) The hearing shall be held at the Division's Headquarters offices, or at such other location as may be designated by the Director, and shall be conducted by the Chief or Deputy Chief of the Division.

(d) The insurer may appeal any adverse action to the Director in the same manner as provided for appeal of denial of certification by section 339.9(c) and (d) and the filing of an appeal shall stay the adverse action until the issuance of a final decision by the Director.

(e) The Insurance Commissioner shall be notified of every final decision by the Director to suspend or revoke certification.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.
2. New section refiled 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–26–94 order transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

### § 339.11. Guidelines for Selecting Targeted Employers.

(a) Section 339.6(b)(2) requires the insurer's annual plan to include a methodology for selecting targeted employers and section 339.6(c) requires the annual plan to demonstrate that the insurer has reliably identified as targeted employers those of its insureds who have the greatest workers' compensation losses and most significant preventable health and safety hazards, and that the insurer's loss control consultation services will effectively serve the needs of targeted employers.

(b) The Division will review the annual plan to determine the effectiveness of the insurer's targeting methodology. Targeting methodologies may be different depending on the insurer and the type of insureds served, but shall utilize an effective combination of any of the following factors, or similar factors:

(1) Type, number, and rate of occupational injuries and illnesses;

(2) Number of workers' compensation claims, or injuries and illnesses, per payroll or premium dollar;

(3) Severity of workers' compensation claims, or injuries and illnesses, per payroll or premium dollar;

(4) Experience modification rating, or other ways of comparing the employer's loss experience to similar employers;

(5) Data from the insurers' previous evaluations of the employer; and

(6) Cal/OSHA citation history.

EXCEPTION: Other information, e.g., direct written premium per employer or the number of employees per employer, may be used as additional factors to be considered in selecting targeted employers. However, such information shall not be used in a manner which results in exclusion of those insureds who have the greatest workers' compensation losses and most significant preventable health and safety hazards.

NOTE: Authority cited: Sections 54 and 55, Labor Code; and section 11721, Insurance Code. Reference: Section 11721, Insurance Code.

HISTORY

1. New section filed 1–10–94 as an emergency; operative 1–10–94 (Register 94, No. 2). A Certificate of Compliance must be transmitted to OAL by 5–10–94 or emergency language will be repealed by operation of law on the following day.
2. New section refiled with amendment of subsection (c) and redesignated EXCEPTION 4–26–94 as an emergency; operative 4–26–94 (Register 94, No. 17). A Certificate of Compliance must be transmitted to OAL by 8–24–94 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 4–26–94 order transmitted to OAL and filed 10–6–94 (Register 94, No. 40).

## Subchapter 2. Regulations of the Division of Occupational Safety and Health

## Article 1. Employers' Obligation to Provide Information to Employees

### § 340. Contents and Posting Requirements of CAL/OSHA Notice.

Every employer shall be required to post immediately upon receipt and to keep posted the CAL/OSHA Notice of Employee Protections and Obligations entitled "Safety and Health Protection on the Job," which is furnished pursuant to Labor Code Section 6328 by the Division of Occupational Safety and Health, Department of Industrial Relations, State of California, containing information on pertinent safety laws, regulations and certain rights of employees under the California Labor Code.

Each employer must post at least one Notice (CAL/OSHA Notice) in each establishment in a conspicuous place where notices to employees are customarily posted. "Establishment" as used in this regulation means a single physical location where business is conducted or where services or industrial operations are performed. Where employers are engaged in activities which are physically dispersed such as construction or transportation, the notice required by this section shall be posted at each location to which employees report each day. Where employees do not usually work at, or report to, a single establishment, such notice or notices shall be posted at the location or locations from which the employees operate to carry out their activities.

Each employer shall take steps to insure that such notices are not altered, defaced or covered by other material.

This notice shall contain the address and telephone number of the nearest Division of Occupational Safety and Health office, and shall inform the employees of their right to report any unsafe working conditions in their place of employment to the Division of Occupational Safety and Health and their right to request a safety inspection by the Division of Occupational Safety and Health for unsafe conditions.

The Notice shall also inform the employees that no employee shall be laid off or discharged for refusing to perform work in the performance of which the provisions of the California Labor Code, any occupational safety or health standard or any safety order of the Division will be violated, where such violation would create a real and apparent hazard to the employee or his fellow employees.

The Notice shall contain the information that each citation issued under Section 6317 of the California Labor Code, Special Order or Order to Take Special Action issued under Section 6308 or a copy or copies thereof shall be prominently displayed at or near each place a violation referred to in the citation or order occurred.

[The next page is 33.]

The Notice shall inform employees that employers who use any substance listed as a hazardous substance in Section 339 of Title 8 of the California Administrative Code must provide employees with information on the contents of material safety data sheets (MSDS) or equivalent information about the substance which trains employees to use the substance safely. That the employer is required to make available on a timely and reasonable basis a MSDS on each hazardous substance in the workplace upon request of an employee, collective bargaining representative, or an employee's physician. Further, that employees have the right to see and copy the medical record and other records of employee exposure to potentially toxic materials or harmful physical agents.

The Notice shall inform the employees that the employer shall provide an opportunity for employees or their representatives to observe monitoring or measuring of employee exposure to hazards conducted pursuant to standards promulgated under California Labor Code Section 142.3, and shall allow the employee or his representative access to accurate records of employee exposures to potentially toxic materials or harmful physical agents.

The Notice shall contain a statement that every employer and every employee shall comply with occupational safety and health standards and all rules, regulations and orders pursuant to Division 5 of the California Labor Code which are applicable to his or her own actions and conduct.

Failure of any employer to post the CAL/OSHA Notice entitled "Safety and Health Protection on the Job" as required by this regulation may result in imposition of a fine of up to $1,000 upon the employer for each violation as set forth in Labor Code Section 6431.

NOTE: Authority cited: Sections 60.5, 6308, 6318 and 6328, Labor Code. Reference: Sections 6318, 6328 and 6408, Labor Code.

HISTORY

1. Amendment filed 2–28–79; effective thirtieth day thereafter (Register 79, No. 9). For prior history, see Registers 74, No. 2; 74, No. 18 and 74, No. 13.
2. Amendment filed 12–5–84; effective thirtieth day thereafter (Register 84, No. 49).
3. Amendment filed 12–5–85; effective thirtieth day thereafter (Register 85, No. 49).

### § 340.1. Rights of Employees to Observe Monitoring or Measuring.

(a) Whenever an employer is required to conduct tests or to engage in monitoring or measuring, to determine employee exposure to hazards by specific standards promulgated under Labor Code Section 142.3, the employer shall notify the affected employee or employees or their representative, prior to commencement of the date, time and place of the testing, monitoring or measuring of employee exposure. The employer shall provide the affected employee or employees, or their representatives with the opportunity to observe the testing, sampling, monitoring or measuring undertaken pursuant to such standards.

(b) The affected employee, employees or their representatives shall be allowed access to the records and reports of the results of the testing monitoring or measuring when carried out under the requirements of a standard promulgated under Labor Code Section 142.3.

HISTORY

1. Amendment filed 7–31–74 as procedural and organizational; designated effective 8–1–74 (Register 74, No. 31).

### § 340.2. Notification to Employee of Exposure Required.

Whenever any employee has been or is being exposed to toxic materials or harmful physical agents in concentrations or at levels exceeding those prescribed by applicable standard, order, or special order, the employer of the affected employee must promptly notify any employee so affected in writing of the fact that the employee has been exposed, and of the corrective action being taken by the employer.

### § 340.3. Employee Access to Accurate Records.

HISTORY

1. Renumbering from Section 53 7–31–74 as procedural and organizational; designated effective 8–1–74 (Register 74, No. 31).
2. Repealer filed 12–5–84; effective thirtieth day thereafter (Register 84, No. 49).

## Article 1.5. Employer's Declaration of Abatement and Other Documentation of Abatement—Employee Notification—Posting Requirements

### § 340.4. Declaration of Abatement, Other Documentation, Employee Notification and Posting Requirements.

(a) Scope and application. This section applies to employers who receive a citation for a violation of Title 8 of the California Code of Regulations.

(b) Definitions.

(1) Abatement means action by an employer to comply with a cited standard or regulation or to eliminate a recognized hazard identified by the Division during an inspection.

(2) Abatement date means:

(i) For an uncontested citation item, the later of:

(A) The date in the citation for abatement of the violation;

(B) The date otherwise approved by the Division as the result of an informal conference; or

(C) The date established in a citation by an informal settlement agreement.

(ii) For a contested citation item for which the Occupational Safety and Health Appeals Board (OSHAB) has issued a final order affirming the violation, the later of:

(A) The date identified in the final order for abatement; or

(B) The date computed by adding the period allowed in the citation for abatement to the final order date; or

(C) The date established by a formal settlement agreement.

(3) Affected employees means those employees who are exposed to the hazard(s) identified as violation(s) in a citation.

(4) Final order date means:

(i) For an uncontested citation item, the fifteenth working day after the employer's receipt of the citation;

(ii) For a contested citation item:

(A) The thirty–fifth day after the date on which a decision or order of an administrative law judge has been issued, unless a Petition for Reconsideration or Order of Reconsideration has been filed with or by OSHAB; or

(B) Where a Petition for Reconsideration or Order of Reconsideration has been filed, the thirty–fifth day after the date on which OSHAB issues its decision or order disposing of the matter; or

(C) The date on which the superior court issues a decision affirming the violation in a case in which a final order of OSHAB has been stayed.

(5) Movable equipment means a hand–held or non–hand–held machine or device, powered or unpowered, that is used to do work and is moved within or between worksites.

(c) Abatement certification.

(1) Within 10 calendar days after the abatement date, the employer must certify to the Division that each cited violation has been abated, except as provided in paragraph (c)(2) of this section.

(2) The employer is not required to certify abatement if the OSHA Compliance Officer, during the on–site portion of the inspection:

(i) Observes, within 24 hours after a violation is identified, that abatement has occurred; and

(ii) Notes in the citation that abatement has occurred.

(3) The employer's certification that abatement is complete must include, for each cited violation, in addition to the information required by paragraph (h) of this section, the date and method of abatement and a statement that affected employees and their representatives have been informed of the abatement.

(4) For serious violations the certification of abatement must be submitted under penalty of perjury as required pursuant to Labor Code section 6320(b).

NOTE: See Appendix A for sample content and form of Abatement Certification Letter.

(d) Abatement documentation.

(1) The employer must submit to the Division, along with the information on abatement certification required by paragraph (c)(3) of this section, documents demonstrating that abatement is complete for each willful or repeat violation and for any serious violation for which the Division indicates in the citation that such abatement documentation is required.

(2) Documents demonstrating that abatement is complete may include, but are not limited to, evidence of the purchase or repair of equipment, photographic or video evidence of abatement, or other written records.

(e) Abatement plans.

(1) The Division may require an employer to submit an abatement plan for each cited violation (except non-serious violations) when the time permitted for abatement is more than 90 calendar days. If an abatement plan is required, the citation must so dictate.

(2) The employer must submit an abatement plan for each cited violation within 25 calendar days from the final order date when the citation indicates that such a plan is required. The abatement plan must identify the violation and the steps to be taken to achieve abatement, including a schedule for completing abatement and, where necessary, how employees will be protected from exposure to the violative condition in the interim until abatement is complete.

NOTE: See Appendix B for sample content and form of Abatement Plan.

(f) Progress reports.

(1) An employer who is required to submit an abatement plan may also be required to submit periodic progress reports for each cited violation. The citation must indicate:

(i) That periodic progress reports are required and the citation items for which they are required;

(ii) The date on which an initial progress report must be submitted, which may be no sooner than 30 calendar days after submission of an abatement plan;

(iii) Whether additional progress reports are required; and

(iv) The date(s) on which additional progress reports must be submitted.

(2) For each violation, the progress report must identify, as briefly as possible, the action taken to achieve abatement and the date the action was taken.

NOTE: See Appendix B for sample content and form of Progress Report.

(g) Employee notification.

(1) The employer must inform affected employees and their representative(s) about abatement activities covered by this section by posting a copy of each document submitted to the Division, or a summary of the document(s), near the place where the violation occurred.

(2) Where such posting does not effectively inform employees and their representatives about abatement activities (for example, for employers who have mobile work operations), the employer must:

(i) Post each document or a summary of the document(s) in a location where it will be readily observable by affected employees and their representatives; or

(ii) Take other steps to communicate fully to affected employees and their representatives about abatement activities.

(3) The employer must inform employees and their representatives of their right to examine and copy all abatement documents submitted to the Division.

(i) An employee or an employee representative must submit a request to examine and copy abatement documents within 3 working days of receiving notice that the documents have been submitted.

(ii) The employer must comply with an employee's or employee representative's request to examine and copy abatement documents within 5 working days of receiving the request.

(4) The employer must ensure that notice to employees and employee representatives is provided at the same time or before the information is provided to the Division and that abatement documents are:

(i) Not altered, defaced, or covered by other material; and

(ii) Remain posted for three working days after submission to the Division.

(h) Transmitting abatement documents.

(1) The employer must include, in each submission required by this section, the following information:

(i) The employer's name and address;

(ii) The inspection number to which the submission relates;

(iii) The citation and item numbers to which the submission relates;

(iv) A statement that the information submitted is accurate; and

(v) The signature of the employer and the employer's authorized representative.

(vi) For serious violations the documentation must be submitted under penalty of perjury as required pursuant to Labor Code section 6320(b).

(2) The date of postmark is the date of submission for mailed documents. For documents transmitted by other means, the date the Division receives the document is date of submission.

(i) Moveable equipment.

(1) For serious, repeat, and willful violations involving movable equipment, the employer must attach a warning tag or a copy of the citation to the operating controls or to the cited component of equipment that is moved within the worksite or between worksites.

NOTE: Attaching a copy of the citation to the equipment will satisfy the tagging requirement of paragraph (i)(1) of this section as well as the posting requirements of section 332.4 of Title 8 of the California Code of Regulations.

(2) If the employer attaches a warning tag, in lieu of the citation, it must warn employees about the nature of the violation involving the equipment and identify the location of the citation issued.

NOTE: See Appendix C for sample form and content of a Warning Tag.

(3) If the violation has not already been abated, a warning tag or copy of the citation must be attached to the equipment:

(i) For hand-held equipment, immediately after the employer receives the citation; or

(ii) For non-hand-held equipment, prior to moving the equipment within or between worksites.

(4) The employer must assure that the tag or copy of the citation attached to movable equipment is not altered, defaced, or covered by other material.

(5) The employer must assure that the tag or copy of the citation attached to movable equipment remains attached until:

(i) The violation has been abated and all abatement verification documents required by this regulation have been submitted to the Division;

(ii) The cited equipment has been permanently removed from service or is no longer within the employer's control; or

(iii) OSHAB issues a final order vacating the citation; or

(iv) As otherwise directed by the Division.

NOTE: Appendices A through C provide information and non-mandatory guidelines to assist employers and employees in complying with the appropriate requirements of this section.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code. Reference: Section 6320, Labor Code; and Title 29, Section 1903.19, Code of Federal Regulations.

HISTORY

1. New article 1.5 (section 340.4), section and appendices A–C filed 9–14–99; operative 10–14–99 (Register 99, No. 38).

## Appendix A to Section 340.4—Sample Abatement—Certification Letter (Non-Mandatory)

(Name), District Manager
Division of Occupational Safety and Health
Address of the District Office (on the citation)

[Company's Name]
[Company's Address]

The hazard referenced in Inspection Number [insert 9-digit #] for violation identified as:

Citation [insert #] and item [insert #] was corrected on [insert date] by: _____.
Citation [insert #] and item [insert #] was corrected on [insert date] by: _____.
(NOTE: Follow sample format for each citation or item)
I attest that the information contained in this document is accurate.

_____
Signature

_____
Typed or Printed Name

Note: For serious violations the submittal must be made under penalty of perjury. For Example:
"I declare under penalty of perjury the foregoing is true and correct. Executed this _____ day of (month) in the city of_____, California.
_____"

(Signature)

### Appendix B to Section 1903.19—Sample Abatement Plan or Progress Report (Non-Mandatory)

(Name), District Manager
Division of Occupational Safety and Health
Address of the District Office (on the citation)

[Company's Name]
[Company's Address]

Check one:
Abatement Plan [ ]
Progress Report [ ]
Inspection Number
Page_____ of _____
Citation Number(s)* _____
Item Numbers _____

| *Action* | *Proposed Completion Date (for abatement plans only)* | *Completion Date (for progress reports only)* |
|---|---|---|
| 1. | | |
| 2. | | |

Date required for final abatement:
I attest that the information contained in this document is accurate.
(NOTE: For serious violations the document must be submitted under penalty of perjury. See Appendix A, above)

_____
Signature

_____
Typed or Printed Name

Name of primary point of contact for questions:_____
[optional]
Telephone Number _____

*Abatement plans or progress reports for more than one citation item may be combined in a single abatement plan or progress report if the abatement actions, proposed completion dates, and actual completion dates (for progress reports only) are the same for each of the citation items.

### Appendix C to Section 340.4—Sample Warning Tag (Non-Mandatory)

WARNING:
EQUIPMENT HAZARD
CITED BY CAL/OSHA
EQUIPMENT CITED:
_____
_____
HAZARD CITED:
_____
_____
FOR DETAILED INFORMATION
SEE CAL/OSHA CITATION
POSTED AT:
_____
_____

## Article 1.6. Adjudicative Hearings—General Rules of Practice and Procedure—Denial, Suspension or Revocation of Permits, Licenses, Certifications, Registrations or Other Authorizations and Orders Prohibiting Use, Issued by the Division of Occupational Safety and Health

### § 340.40. Scope and Application.

(a) These general rules of practice and procedure of the Division of Occupational Safety and Health (hereinafter "the Division") are applicable to proceedings involving the denial, suspension or revocation of any license, permit, certification, registration or other authorization issued by the Division, and proceedings involving an Order Prohibiting Use (for purposes of this article, hereinafter referred to as "OPU") issued pursuant to Labor Code section 6325.

(b) These general rules of practice and procedure may supplement, but shall not replace, other codified administrative notice and appeal procedures. In case of conflict with codified notice and appeal procedures, the more-specific procedures shall apply.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New article 1.6 (sections 340.40–340.52) and section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.41. Notification of Division Proceedings for Denial, Suspension or Revocation.

(a) When, after review, examination, investigation or inspection, the Division determines that good cause exists to deny, suspend or revoke any permit, license, certification, registration, or other authorization is-

sued by the Division, written notification shall be provided to the person or entity against whom the Division intends to take such action.

(b) The notification shall cite the statute or regulation authorizing the action taken by the Division, and shall state the grounds constituting good cause for the denial, suspension, revocation or other action proposed by the Division.

(c) The notification may be served personally, by facsimile, by overnight delivery, or by certified mail. The provisions of this article are subject to Section 1013 of the California Code of Civil Procedure.

(d) The Director of the Department of Industrial Relations (for purposes of this article, the Director of the Department of Industrial Relations shall hereinafter be referred to as "the Director") or the Division shall make a copy of these regulations available to appellants, and shall advise appellants that the appeal proceedings shall not be subject to the provisions of Chapter 5 (commencing with Section 11500) of Part 1, Division 3, of Title 2 of the California Government Code.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.42. Request for Hearing.

(a) Within five working days after receipt of the Division's denial of an application for any license, permit, certification, registration or other authorization, or the suspension or revocation of a permit, license, certification, registration or other authorization, or the issuance of an Order Prohibiting Use, the affected applicant or employer may request a hearing to review the validity of the Division's action.

(b) The request for hearing must be in writing and must set forth specific reasons why the Division's action was improper. An appellant's failure to mail or otherwise deliver a request for hearing within five working days of receipt of notification of the action will result in the Division's action being considered final and not subject to review, except where review is otherwise provided by law.

(1) For the denial of an application for a permit, license, certification, registration or other authorization, the written request for hearing shall be mailed or otherwise delivered to the headquarters office of the Director.

(2) For the suspension or revocation of a permit, license, certification, registration, or other authorization, the written request for hearing shall be mailed or otherwise delivered to the headquarters of the Division.

(3) For the issuance of an Order Prohibiting Use, the request for hearing shall be mailed or otherwise delivered to the District Manager of the district office which issued the Order Prohibiting Use.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.43. Designation of Presiding Officer and Notification of Hearing.

(a) Upon receipt of a request for an appeal hearing regarding the Division's denial of an application for a permit, license, certification, registration, or other authorization, the Director or the Director's Chief Counsel shall designate a Presiding Officer to conduct the hearing. Upon receipt of a request for hearing regarding the suspension or revocation of a permit, license, certification, registration, or other authorization, the Chief of the Division shall designate a Presiding Officer to conduct the hearing. The Presiding Officer may be a Deputy Chief, Regional Manager, or other designated representative. For hearings regarding the issuance of Orders Prohibiting Use, the District Manager shall serve as Presiding Officer.

(b) The Department or Division shall notify the appellant of the date, time and location of the hearing, and of the name of the Presiding Officer. The date and time of the hearing shall be subject to the specific provisions of the statute or regulation, if any, authorizing the action. Where no statute or regulation imposes specific time limitations, a hearing shall be set so as to provide sufficient time for preparation and attendance at the hearing, but in no event less than five working days following the receipt of a request for hearing, unless appellant agrees to or requests an earlier hearing. Hearings regarding the issuance of an OPU shall be held within 24 hours following receipt of the appellant's request for a hearing, unless appellant agrees to or requests a later hearing.

(c) The Presiding Officer may change the date, time and location of the hearing for good cause upon his or her own motion or upon the written motion of either party at any time prior to the hearing.

(d) The appellant must immediately notify all affected employees, former employees, and employee representatives, if any, of the date, time and location of the hearing along with a description of the purpose for the hearing, by posting the notification of hearing or otherwise providing written notice. The notification of hearing must remain posted in a conspicuous place for at least three working days or until the date of the hearing, whichever is less.

(e) The Division or Department may serve the notification of hearing, as required under subsection (b), personally, by facsimile or by overnight delivery.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5, 6308 and 6327, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.44. Conduct of Hearing.

(a) The Presiding Officer shall be responsible for receiving evidence both from Division representatives and the appellant and shall issue a decision as set forth in this article. Parties shall have the opportunity to present relevant documentary or other evidence through the presentation of direct testimony, the cross–examination of witnesses, and the rebuttal of any evidence presented during hearing. The Presiding Officer may also examine witnesses or request the presentation of additional relevant evidence.

(1) Upon motion, the Presiding Officer may exclude witnesses from the hearing room. Each party may designate one representative who may stay in the hearing room, even if the representative will also serve as a witness.

(2) A party may appear in person or through a representative who is not required to be an attorney.

(3) Designated employee representatives may make written request to participate in the hearing if it is established that such participation will be relevant to any issues presented at the hearing.

(4) The Presiding Officer shall receive evidence under oath or affirmation under penalty of perjury. The hearing shall be tape–recorded, unless the parties agree to some other method of recording the hearing. If the parties do not agree to an alternative method of recording, the Presiding Officer shall make the official record of the hearing by tape recording, and may allow each party to make and pay for an additional record if, in the Presiding Officer's opinion, the making of the additional record or records would not unduly disrupt the proceedings.

(b) The hearing shall not be subject to the technical rules relating to evidence or witnesses. However, only relevant evidence of the sort responsible persons are accustomed to rely upon in conducting serious affairs shall be admitted and relied upon in rendering a decision. Hearsay evidence is admissible but, if objected to, may not be solely relied upon without other supporting evidence unless the hearsay would be admissible over objection in a civil proceeding.

(c) Any hearing conducted pursuant to this article shall be open to the public as required pursuant to Government Code section 11425.20.

(d) During all stages of a hearing, the Presiding Officer and all parties to the hearing shall be subject to the provisions of Article 7 (commencing with section 11430.10), of Chapter 4.5 of Part 1, Division 3, Title 2 of the Government Code regarding ex parte communication.

(e) The matter shall be deemed submitted at the conclusion of the hearing unless some other submission date is agreed to between the parties or otherwise designated by the Presiding Officer.

(f) The Presiding Officer shall, on behalf of the Director or Division, issue and serve a written decision on the parties no later than thirty (30) calendar days after submission of the matter for decision, except as follows.

(1) The time for issuance and service of the decision may be extended by the Presiding Officer for good cause.

(2) For an Order Prohibiting Use, a decision concerning the validity of the order shall be made as soon as possible, but not more than two working days, after the conclusion of the hearing.

(g) Decisions shall be in writing and shall include findings of fact and conclusions supporting the decision. However, at his or her discretion, a Presiding Office may issue a preliminary decision without setting forth findings of fact and conclusions supporting the decision, as long as a complete decision is issued within the time period provided in this section.

(h) Any right to request review of the decision shall be governed by the specific regulation or statute authorizing the action taken by the Division.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5, 6308 and 6308.5, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.45. Presiding Officer — Grounds for Disqualification.

Any Presiding Officer may be disqualified for any ground set forth in Government Code sections 11425.30 and 11425.40. A request for disqualification must be in writing to the Director and shall specifically detail the grounds upon which disqualification is sought and the factual basis for the request. The request shall be filed with the Director pursuant to the provisions of section 340.46 of this Article.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.46. Service of Process.

(a) Unless otherwise required, service may be made by personal delivery or by depositing the documents in a post office, mailbox or mail chute, or other like facility regularly maintained by the United States Postal Service, sealed, properly addressed, with first–class postage prepaid.

(b) Service is complete at the time of the personal delivery or mailing.

(c) Proof of service shall be filed with the document and may be made by any of the following means:

(1) Affidavit or declaration of service by personal delivery or mail;

(2) Written statement endorsed upon the document served and signed by the party making the statement; or

(3) Letter of transmittal.

(d) Facsimile (fax) machines may be used to serve and file documents under the following conditions:

(1) The length of the document to be filed and/or served shall be no more than twelve (12) pages including cover page and attachments.

(2) A copy sheet shall be attached containing the number of pages transmitted, the fax number of the sender, the sender's telephone number, and the name of the contact person.

(3) If a document is filed by fax, all parties shall be served in the same manner or by guaranteed overnight delivery. The fax transmission shall include a proof of service indicating the method of service on each party, and

(4) No later than 24 hours after transmission, the sending party shall file and serve on all parties the original of any faxed document as set forth in this section.

(e) For facsimile service and filing of documents, a document is considered received on the following working day if transmission begins later than 5:00 p.m. Pacific Time.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.47. Discovery.

(a) Upon written request made to the other party prior to hearing, a party to the proceeding is entitled to obtain the names and addresses of witnesses to the extent known to the other party, including, but not limited to, those intended to be called to testify at the hearing. Nothing in this section requires the disclosure of the identity of a person who submitted a complaint regarding the unsafe nature of an employment or place of employment unless the complainant requests otherwise.

(b) A party is entitled upon written request to inspect and make copies of any of the following materials in the possession or custody or under the control of the other party:

(1) Any statements of parties or witnesses relating to the subject matter of the proceeding;

(2) All writings or things which the party then proposes to offer in evidence;

(3) Any other writing or thing which is relevant and which would be admissible in evidence;

(4) Inspection and investigative reports made by, or on behalf of, the Division or other party pertaining to the subject matter of the proceeding, to the extent that such reports: contain the names and addresses of witnesses or persons having personal knowledge of the acts, omissions or events which are the basis of the proceeding; reflect matters perceived by the Division or other party in the course of its inspection, investigation or survey; or contain or include by attachment any statement or writing described in this section.

(c) The parties shall arrange for a mutually–agreeable time for exchange of requested materials and information but in no event later than 24 hours prior to the time set for hearing.

(d) The Presiding Officer may, upon written request by either party, make provision for timely completion of discovery.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5, 6308 and 6309, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.48. Subpoenas and Subpoenas Duces Tecum — Witness Fees.

(a) Before the hearing has commenced, the Division or any party may issue a subpoena or subpoena duces tecum requiring the attendance of a person or the production of documents or things at the hearing.

(b) Any subpoena or subpoena duces tecum issued pursuant to subsection (a) of this section extends to all parts of the state and shall be served in accordance with the provisions of sections 1985.3, 1987, 1987.5 and 1988 of the Code of Civil Procedure, except for the provisions governing the time for issuance of subpoenas and subpoenas duces tecum. Service of a subpoena or subpoena duces tecum is made by delivering a copy to the witness.

(c) All witnesses appearing pursuant to subpoena, other than the parties, or their representatives directly associated with the action, shall be entitled to receive the following fees and mileage, payable in advance:

(1) Witness fee for each day's actual attendance of thirty–five dollars ($35.00);

(2) Mileage actually traveled, both ways, of twenty cents ($.20) a mile;

(3) Per diem compensation of three dollars ($3.00) for expenses of subsistence for each day of actual attendance and for each day necessarily occupied in traveling to and from the hearing, if the hearing is at a point so far removed from a residence as to reasonably preclude return thereto from day to day;

(d) Fees, mileage and expenses of subsistence shall be paid by the party at whose request the witness is subpoenaed.

(e) A party who subpoenas a peace officer as listed at Government Code section 68097.1 or individuals designated by Government Code 68097.2 shall reimburse the public entity for the full cost of the public entity incurred in paying the officer his or her salary or other compensation and traveling expenses for each day that such officer is required to remain in attendance.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.49. Official Notice.

(a) In reaching a decision, a Presiding Officer may take official notice either before or after submission of the proceeding for a decision, of any generally accepted technical or scientific matter within the field of occupational safety and health, and determinations, rulings, orders, findings and decisions, required by law to be made by the Division, Occupational Safety and Health Appeals Board or Occupational Safety and Health Standards Board.

(b) The Presiding Officer shall take official notice of those matters set forth in section 451 of the Evidence Code and may take official notice of those matters set forth in section 452 of the Evidence Code.

(c) Each party shall be given reasonable opportunity on request to present information relevant to (1) the propriety of taking official notice, and (2) the tenor of the matter to be noticed.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.50. Confidential Evidence.

(a) A Presiding Officer shall consider confidential any exhibit which might reveal a trade secret referred to in section 1905 of Title 18 of the United States Code, information that is confidential pursuant to Chapter 3.5 (commencing with section 6250) of Division 7 of Title 1 of the Government Code, or photographs taken by the Division during the course of any inspection or investigation.

(1) The Presiding Officer shall issue necessary orders to protect the confidentiality of such information, including the exclusion of witnesses during the course of the hearing if testimony might tend to reveal the substance of the confidential information.

(2) Parties shall request confidentiality at the time the evidence is submitted.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5, 6308, 6314 and 6322, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.51. Prehearing Motions.

(a) No later than 24 hours prior to a hearing, a party may make a written motion for continuance or for clarification of issues related to discovery or other matters deemed important to the issues to be addressed during the course of the hearing.

(b) Such written motion shall be filed with the Presiding Officer and served upon the other party in conformance with section 340.46 of this article.

(c) The Presiding Officer may issue such orders as it deems necessary to address the issues referenced in such written motion.

(d) Prehearing motions in connection with the appeal of an OPU may be made up until and including the day of the appeal hearing.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

### § 340.52. Interpreters.

(a) All hearings shall be conducted in the English language. The Division shall notify each party of the right to an interpreter at the time it serves notification of a proceeding pursuant to Section 340.41, or at the time it issues an OPU.

(b) A party who does not proficiently speak or understand the English language, who calls a witness who does not proficiently speak or understand the English language, or who requests an interpreter, shall be provided with an approved interpreter during the hearing. A request for an interpreter shall be made at the same time as the request for appeal. The party requesting the interpreter shall pay the cost of the interpreter, unless the Division elects to pay the interpreter based on the financial hardship of the requesting party.

(c) For purposes of this section, an approved interpreter is a person whose name appears on the list of interpreters approved by the Occupational Safety and Health Appeals Board, the State Personnel Board, or the Superior Court for the County in which the hearing is conducted.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code. Reference: Sections 60.5 and 6308, Labor Code; and Section 11400.20, Government Code.

HISTORY

1. New section filed 8–26–2002; operative 9–25–2002 (Register 2002, No. 35).

## Article 2. Permits—Excavations, Trenches, Construction and Demolition and the Underground Use of Diesel Engines in Work in Mines and Tunnels

### § 341. Permit Requirements.

(a) Scope and Application.

(1) This article specifies:

(A) Work activities that require permits;

(B) What permit holders must do to comply with permit requirements;

(C) What types of permits can be obtained; and

(D) How to apply for a permit.

(2) The purpose of a permit is to provide notice to the Division that an employer will undertake permit–required activity and to allow the Division an effective means of ensuring that the proposed permit–required activity will be performed safely.

(3) There are two types of permits: Project Permits and Annual Permits. Both types are defined below in subsection (b) and explained in subsections (c), (d), and (e).

(4) The Permit application process is explained in section 341.1.

(b) Definitions. The following definitions apply to this article:

(1) "Annual permit" means a permit issued pursuant to section 341.1(a)(2) that allows a qualifying employer to conduct specified permit–required activity at any jobsite for a period of one year.

(2) "Climbing a fixed tower crane" means altering the height of the revolving section of the crane by adding or removing tower sections with the use of a climbing frame.

(3) "Conduct permit–required activity" means either:

(A) Engage in permit–required activity by having employees who actually perform the activity; or

(B) Act in the role of a project administrator at a site where permit–required activity is taking place, regardless of whether this role involves having employees who actually perform the activity.

NOTE: See definition of "permit required activity" below.

(4) "Emergency repair work to underground facilities" means the unscheduled repair or replacement of pipes or other underground structures for the purposes of protecting life or property.

(5) "Height" when used to describe a structure means the distance from the top of the structure, including any parapet walls, mechanical rooms or other penthouse structures, to the lowest point of the surround-

ing grade or ground level below. Mechanical screens, antennas, chimneys, flag poles, and similar attachments are not to be considered in determining the height of a structure.

(6) "Hold a project permit" or "Hold an annual permit" means to have a valid applicable permit which was obtained prior to the start of work. In the case of underground use of a diesel engine in a mine or tunnel the permit shall be obtained prior to placing the engine in the mine or tunnel.

(7) "Permit-required activity" means activity for which a permit is required by this Article.

Note: See section 341(d) below for a description of these activities.

(8) "Project Administrator" means a person or entity that has overall onsite responsibility for the planning, quality, management, or completion of a project involving the erection or demolition of a structure. Examples of Project Administrators include, without limitation, general contractors, prime contractors, owner/builders, joint ventures, and construction managers.

(9) "Project permit" means a permit issued pursuant to section 341.1(a)(1) that authorizes an employer to conduct permit-required activity at the specific location(s) named in the permit.

(10) "Structure" means any creation by human activity of a piece of work, formation, or series of parts joined together, including but not necessarily limited to the following:

Billboards.
Bridges.
Buildings.
Chimneys.
Dams.
Elevated highways.
Falsework.
Outdoor signs.
Powerhouses.
Scaffolding.
Silos.
Smokestacks.
Tanks or tank towers.
Transmission or communication towers.

(c) Basic permit requirement.

(1) Project Permits.

(A) Work on permit-required activities on a project subject to Project Permit requirements shall not begin until a Project Permit has been issued for the project.

(B) Only one Project Permit is required per project as long as the Project Permit holder continues to act in the role of Project Administrator, even though the project may have more than one employer fitting the description of a Project Administrator. If the holder of the current Project Permit no longer continues to act in the role of Project Administrator, that Project Permit is no longer valid, and no project work shall continue until a new Project Permit has been issued.

NOTE: See Sections 341.1(f) and 341.1(g) of this article for additional details regarding the scope of coverage of a Project Permit.

(2) Annual Permits.

(A) Any employer other than a Project Permit holder who conducts permit-required activity shall hold a current Annual Permit before engaging in the activity.

(B) An employer who conducts activity subject to Annual Permit requirements shall obtain an Annual Permit once per year and shall notify the Division each time the permit holder begins permit-required activity at a new site.

(d) Work Activities Subject to Permit Requirements and the Types of Permits Required to Conduct the Activities.

(1) To erect, raise or lower, or dismantle a fixed tower crane, the fixed tower crane erector, climber, or dismantler shall hold a Project Permit.

NOTE NO. 1: See Section 341.1 of this article for additional details on Project Permit requirements for fixed tower cranes.

NOTE NO. 2: See Sections 344.70 et seq. of Title 8 of the California Code of Regulations for additional requirements applicable to permits to operate a fixed tower crane.

(2) To engage in the underground use of a diesel engine in any mine or tunnel, each employer or entity who is to operate the diesel engine shall hold a Project Permit. The permit shall be obtained prior to placing the engine in the mine or tunnel.

(3) To conduct the demolition or dismantling of any building or structure more than 36 feet in height, the Project Administrator shall hold a Project Permit and all other employers directly engaging in demolition or dismantling activity shall hold an Annual Permit.

(4) To conduct any of the following activities on a structure intended to be more than 36 feet high when completed, the Project Administrator shall hold a Project Permit and all other employers directly engaging in these activities shall hold an Annual Permit:

(A) Erection and placement of structural steel or erection and placement of structural members made of materials other than steel.

NOTE: No permit is required for work limited to the erection or placement of reinforcing bars used in reinforced concrete construction.

(B) Installation of metal decking or decking made of substitute materials.

(C) Installation of curtain walls, precast panels, or fascia.

(D) Forming or placement of concrete structures or concrete decks on steel structures.

(E) Installation of structural framing, including roof framing, or the installation of panelized roof systems.

NOTE: No permit is required for work limited to the installation of interior partitions.

(5) To conduct the following activities, the employer shall hold an Annual or a Project Permit, and may apply for either:

(A) Construction of trenches or excavations 5 feet or deeper into which any person is required to descend.

NOTE: For purposes of this subsection, "descend" means to enter any part of the trench or excavation once the excavation has attained a depth of 5 feet or more.

(B) Erection and placement of scaffolding, vertical shoring, or falsework intended to be more than 36 feet high when completed.

(e) Exceptions to Permit Requirements. The provisions of this section shall not apply to the following:

(1) Government Bodies — United States of America, its officers or agencies, State of California, county, city and county, city, or district.

(2) Any public utility subject to the jurisdiction of the Public Utilities Commission.

(3) Construction of trenches or excavations for the purpose of performing emergency repair work to underground facilities.

(4) Construction or final use of excavations or trenches where the construction or final use does not require a person to descend into the excavation or trench.

(5) Excavation for the construction of graves as defined in Section 7014 of the Health and Safety Code.

(6) Excavation for the construction of swimming pools.

NOTE: The construction of motion picture, television, or theater stages and sets does not require a permit unless the conditions specified in Section 6500(b) of the California Labor Code have occurred. For purposes of this requirement, stages and sets include, without limitation, scenery, props, backdrops, flats, greenbeds, and grids.

NOTE: Authority and reference cited: Sections 60.5, 6308 and 6501, Labor Code. Reference: Sections 6500, 6501 and 6508, Labor Code.

HISTORY

1. New Article 2 (Sections 341–341.5) filed 8–1–74 as an emergency; effective upon filing (Register 74, No. 31).
2. Certificate of Compliance filed 10–25–74 (Register 74, No. 43).
3. Amendment filed 7–9–80; effective thirtieth day thereafter (Register 80, No. 28).
4. Amendment of subsection (a) filed 12–5–84; effective thirtieth day thereafter (Register 84, No. 49).
5. Amendment of subsection (a) filed 12–5–85; effective thirtieth day thereafter (Register 85, No. 49).
6. New subsection (a)(4) filed 3–18–91; operative 3–18–91 (Register 91, No. 15).
7. Repealer and new section filed 9–29–2006; operative 10–29–2006 (Register 2006, No. 39).

## § 341.1. Issuance of Permits.

(a) Where to Submit Permit Applications.

(1) Project Permits. A Project Permit application shall be submitted to the Division district office that has jurisdiction over the site of the project to be covered by the Project Permit.

(2) Annual Permits. An Annual Permit application shall be submitted to the Division district office where the employer's California headquarters is located. If the employer has no California headquarters, the application shall be submitted to the Division's headquarters.

NOTE: Project and Annual Permit application forms are available at all Division offices. Generally, the addresses and telephone numbers of Division district offices may be found on the Cal/OSHA Notice poster required pursuant to Section 340 of Title 8 of the California Code of Regulations.

(3) Permits for Use of Diesel Engines in Mines and Tunnels. Permit applications for the use of diesel engines in mines and tunnels shall be submitted to the nearest office of the Division's Mining and Tunneling Unit.

NOTE: Permit application forms for the underground use of diesel engines are available at all offices of the Division's Mining and Tunneling Unit.

(b) General Requirements for Permit Applications.

(1) All Permit applications shall include the following:

(A) The applicant's business name, business address, telephone number, fax number and, if applicable, the applicant's email address.

(B) The name of the applicant's representative; and that representative's contact telephone number(s).

(C) A valid and applicable license number issued by the California Contractors State License Board, if applicable.

(D) An attached copy of a current policy, binder or other proof of workers' compensation insurance, if applicable.

(E) An attached check or money order for the permit fee as provided in section 341.3 of this article.

(F) A certification from the applicant's representative that he or she has knowledge of the applicable occupational safety and health standards and will comply with such standards and any other lawful orders of the Division.

(G) A description of the conditions, practices, means, methods, operations or processes used or proposed to be used by the applicant to provide a safe and healthful place of employment.

NOTE: No cash or credit card payments will be accepted by the Division.

(2) In addition, an application for a project permit shall include the following information:

(A) A jobsite telephone number.

(B) The specific jobsite location(s), including street address(es) or cross streets.

(C) The anticipated start date and date of completion.

(D) The permit-required activity to be covered by the permit and a description of the activity for which the permit is sought in sufficient detail to allow an effective evaluation of the safety of the proposed project.

(c) Additional application Requirements for Permits for Underground Use of Diesel Engines in Mines and Tunnels and Permits for Fixed Tower Cranes.

(1) Permits for Underground Use of Diesel Engines in Mines and Tunnels. A permit application for the underground use of diesel engines in mines and tunnels, in addition to the information set forth in this section, shall provide the following:

(A) Complete details and specifications of each diesel engine and exhaust purifying device.

(B) Location of the mine or tunnel and details of how the diesel equipment is to be used.

(C) Length, cross-section, and layout of the underground haulage ways.

(D) Maximum number and brake horsepower of diesels to be operated in any aircourse.

(E) Ventilation plans, including direction of airflow, fan capacity, duct sizes, and auxiliary ventilation.

(F) Date when proposed diesel use is to begin and dates and locations where a representative of the Division may conduct tests of the diesel exhaust gases and mechanical conditions affecting exhaust gas emission.

(2) Permits for Erecting, Climbing, and Dismantling of Fixed Tower Cranes.

Each application for a permit to erect, climb, or dismantle a fixed tower crane shall, in addition to providing the information required by this article, certify that:

(A) A Division-licensed tower crane certifier or surveyor or safety representative for the distributor or manufacturer of the fixed tower crane will be present during erection, climbing, and dismantling operations to assure that such processes and operations are performed in accordance with manufacturer recommendations and applicable standards or orders; and

NOTE: See Sections 344.70 et seq. of Title 8 of the California Code of Regulations for additional requirements applicable for permits to operate a fixed tower crane.

(B) The applicant will notify the Division of the following dates and times:

(i) Initial erection at this site;

(ii) Completion of erection and commencement of operation;

(iii) Climbing of the tower crane; and

(iv) Dismantling of the tower crane.

NOTE: The notification must be received by the Division at least 24 hours prior to the activity which is the subject of the notification and may be in writing or by telephone followed by written notification. The notification shall be made to the district office of the Division from which the permit was obtained and must include the date and time of the intended activity.

(d) Safety Conference for Project Permits and Annual Permits.

(1) The Division may conduct any investigation and/or hearing it deems necessary for the purpose of this article, and may require a safety conference to discuss the permit applicant's safety program and the means, methods, devices, processes, practices, conditions or operations the permit applicant intends to use to provide employment and a place of employment that are safe and healthful.

(2) When scheduling a safety conference, the Division shall make a reasonable effort to accommodate the scheduling needs of the applicant, shall furnish the applicant with a recommended checklist of information and documentation to bring to the safety conference, and shall clearly inform the applicant which parties are required to attend.

(3) The safety conference shall be held at a district office or at a designated place convenient for the attending parties, and shall be open to the permit applicant, representatives of the owner, contracting agencies, and employees and their representatives. The permit applicant shall notify all attending parties of the safety conference a reasonable time prior to the holding of the safety conference. Proof of such notification shall be made at the safety conference.

(e) General Requirements Applicable to Issuance of All Permits.

(1) A permit may be issued to an applicant following the filing of a completed Permit Application form, compliance with all the requisites therein, payment of the permit fee as provided in Section 341.3 of this article, and a determination by the Division that all qualifications for receipt of a permit have been met by the applicant. Except as provided in Section 8470(*l*), the Division shall issue a Project Permit within five working days of the initial project permit safety conference, if the application materials presented by the applicant at the safety conference are complete. If the application materials are not complete, the applicant shall be given a written list before leaving the safety conference of the materials or information needed to complete the application. The Division shall issue the Project Permit within five working days of receiving complete application materials or deny the permit in writing pursuant to the requirements of Section 341.2.

NOTE: Where Project Permits are required for structures subject to the requirements of Section 341(d)(4), the Division may issue conditional permits when specific information is not yet available.

(2) Each permit issued by the Division shall include the following information:

(A) The person or entity to whom the permit has been issued.

(B) The permit number.

(C) The type of permit issued.

(D) The date through which the permit will remain valid.

(E) The fee amount collected; the check or money order number; and the name of the person collecting the fee.

(F) The name of the person who investigated the permit application and held the permit conference, and the name of the person approving the issuance of the permit.

(G) The specific activities and/or projects covered by the permit.

(f) Issuance of Project Permits for All Projects Other Than Erection of Tower Cranes. The permit applicant shall be required to obtain only one Project Permit for the following work activities:

(1) The construction or demolition of a building or structure over 36 feet high, and the associated excavation of trenches and excavations at the same site.

(2) Any project of construction of a building, structure, vertical shoring, or falsework and/or erection of scaffolding at the same site.

(3) Any project or demolition of a building, structure, or dismantling of scaffolding, vertical shoring or falsework at the same site.

(4) For all or any combination of activities listed in subsection (f)(1), (2), and (3) above at the same jobsite.

(5) Two or more projects when the work is part of the same contract but is located in different Division districts, and the work to be performed is the installation or erection of essentially identical structures.

(A) Such essentially identical structures may include structures such as silos, outdoor signs, tanks or tank towers, and transmission or communication towers.

(B) Such essentially identical structures shall not include bridges, dams, elevated highways, buildings, or tower cranes.

(C) The Project Permit for work on such essentially identical structures shall be issued by the Division district office where the first project scheduled to be commenced is located.

(D) For each subsequent project covered by the Project Permit, the permit holder shall notify the Division district office that has jurisdiction over the site of the project at least 24 hours prior to the activity which is the subject of the notification. Notification shall be given by mail, personal delivery, fax transmission or electronic mail, and shall provide the location of the project and the date and time the work activity is to commence.

(g) Issuance of Project Permits for Fixed Tower Cranes.

Only one permit is required to erect, alter the height of, and dismantle a single fixed tower crane, provided all of this work is done by the same entity. If another entity engages in any of these activities, that entity shall also obtain a Project Permit. If a fixed tower crane is relocated to a new position on the same project a new Project Permit is required.

(h) Issuance of Annual Permits.

(1) An Annual Permit may be issued upon the applicant's demonstration that it has an adequate safety program that has been developed for the work activity to be covered by the permit, subject to the conditions specified below and any additional conditions specified by the Division. Except as provided in the Note below, the permit shall expire one year later at the close of business on the day prior to the anniversary date of issuance. The permit shall display the expiration date.

NOTE: During the first year following the effective date of this article, the Division may issue Annual Permits for longer than one year in order to stagger the expiration dates.

(2) Annual Permits shall be issued subject to all of the following conditions:

(A) The work shall be performed by the entity named in the permit.

(B) The permit holder shall notify the Division district office that has jurisdiction over the site of the project at least 24 hours prior to the activity which is the subject of the notification. Notification shall be given by mail, personal delivery, fax transmission or electronic mail, and shall provide the location of the project and the date and time the work activity is to commence.

(3) Annual Permits may be renewed by mail.

NOTE: Authority cited: Sections 60.5, 6308, 6501, 6502 and 6503, Labor Code. Reference: Sections 6500, 6501, 6502, 6503, 7373 and 7382, Labor Code.

HISTORY

1. Amendment of subsections (a), (b) and (i) filed 10–25–74; effective thirtieth day thereafter (Register 74, No. 43).
2. Amendment of subsection (a) filed 11–29–74; effective thirtieth day thereafter (Register 74, No. 48).
3. Amendment of subsection (b) filed 5–6–75 as procedural and organizational; effective upon filing (Register 75, No. 19).
4. Amendment of subsections (b) and (c) filed 12–5–84; effective thirtieth day thereafter (Register 84, No. 49).
5. Amendment filed 12–5–85; effective thirtieth day thereafter (Register 85, No. 49).
6. New subsection (b)(1) filed 3–18–91; operative 3–18–91 (Register 91, No. 15).
7. Amendment of subsections (a), (b), (e) and (f) filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
8. Amendment of NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).
9. Amendment of section and NOTE filed 7–13–95 as an emergency; operative 7–13–95 (Register 95, No. 28). A Certificate of Compliance must be transmitted to OAL by 11–10–95 or emergency language will be repealed by operation of law on the following day.
10. Editorial correction inserting HISTORY 4 designator (Register 95, No. 36).
11. Amendment of section and NOTE refiled 11–8–95 as an emergency; operative 11–8–95 (Register 95, No. 45). A Certificate of Compliance must be transmitted to OAL by 3–7–96 or emergency language will be repealed by operation of law on the following day.
12. Reinstatement of subsection (f) as it existed prior to emergency amendment of 11–8–95 by operation of Government Code section 11346.1(f) (Register 96, No. 15).
13. Amendment of subsections (f)(1) and (f)(1)(C) filed 4–9–96; operative 4–9–96 pursuant to Government Code section 11346.2(d) (Register 96, No. 15).
14. Repealer and new section filed 9–29–2006; operative 10–29–2006 (Register 2006, No. 39).

## § 341.2. Denial of Permit.

(a) The Division shall deny issuance of a permit if in its opinion, based on available facts, the employer has failed to show that the conditions, practices, means, methods, operations or processes used or proposed to be used will provide a safe and healthful place of employment. A relevant factor in the Division's determination will be the employer's prior occupational safety and health history. In denying a permit to an applicant employer, the district or field office shall immediately notify the employer, in writing, specifying the reasons for such denial and shall send a copy thereof to the Director.

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(b) Any employer denied a permit by the Division may appeal such denial to the Director. The Director shall hold a hearing at such place designated by the Director or his authorized designee for the convenience of the attending parties within two working days of the employer's appeal. The employer has the burden of establishing that it qualifies for a permit.

The hearing shall be presided by the Director or his authorized designee and shall also be open to employees or employees' representative. The employer shall notify the employees or employees' representative of such hearing a reasonable time prior to the holding of such hearing. Proof of such notification by the employer shall be made at the hearing.

(c) Following the hearing, the Director shall issue his decision. The Director's decision shall be final except for any rehearing or judicial review provided for by law. All requests for rehearing shall be filed with the Director within ten days from the date of the Director's decision.

NOTE: Authority cited: Sections 60.5, 6308, 6502 and 6506, Labor Code. Reference: Sections 6308, 6308.5, 6502 and 6506, Labor Code.

HISTORY

1. Amendment of subsections (a) and (b) filed 12-5-84; effective thirtieth day thereafter (Register 84, No. 49).

### § 341.3. Permit Fees.

To cover the costs involved in investigating the permit application, and issuing permits, the following schedule of fees are deemed reasonable and necessary. Such applicable fees shall be paid by the employer to the Division of Occupational Safety and health before the issuance of the permit:

(a) Construction of excavations and/or trenches – $50.00.

(b) Construction of building, structure, or dismantling of falsework or scaffolding – $50.00.

(1) For the erection, including climbing and dismantling of the tower structure of a fixed tower crane – $350.00.

(c) Demolition of building or structure, or dismantling of scaffolding or falsework – $50.00.

(d) The underground use of diesel engines in work in mines and tunnels – $50.00.

(e) Annual permits as specified in section 341.1(e) of this article, for period January 1 to December 31 – $100.00.

(f) All fees collected by the Division under this section shall be paid into the General Fund of the State Treasury.

NOTE: Authority cited: Sections 60.5, 6308 and 6507, Labor Code. Reference: Sections 6507 and 7373, Labor Code.

HISTORY

1. Amendment filed 2-28-79; effective thirtieth day thereafter (Register 79, No. 9).
2. Amendment filed 5-16-85; effective thirtieth day thereafter (Register 85, No. 20).
3. Change without regulatory effect amending section (d) filed 9-14-90 pursuant to section 100, title 1, California Code of Regulations (Register 90, No. 43).
4. New subsection (d) and renumbering of subsection (d) and (e) to (e) and (f) filed 3-18-91; operative 3-18-91 (Register 91, No. 15).
5. Amendment of subsection (b) filed 7-15-91 as an emergency; operative 7-15-91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11-12-91 or emergency language will be repealed by operation of law on the following day.
6. Amendment of NOTE filed 3-18-92; operative 3-18-92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

### § 341.4. Posting of Permit.

Any employer issued a permit pursuant to this Article shall post a copy or copies of the permit at or near each place of employment. If such posting is impracticable at the site of an excavation, the permit shall be made available at such site at all times, or, in the case of a mobile unit, the permit shall be made available at all times at the employer's head office in the district.

### § 341.5. Revocation or Suspension of Permit.

(a) The Division may at any time, upon a showing of good cause and after notice and an opportunity to be heard, revoke or suspend any permit issued pursuant to this Article.

(b) Notice shall be in writing and served upon the employer at least 24 hours in advance of the hearing. Service shall be by personal service or certified mail to the employer's address as shown on the Permit Application Form. The notice shall specify the reasons for the action taken by the Division in order that the employer may prepare for the hearing.

(c) The hearing shall be held as soon as possible at the district or field office, shall be presided by the district manager or his authorized designee and shall also be open to the affected employees or their representative.

The employer shall notify the employees or employees' representative a reasonable time prior to such hearing. Proof of such notification by the employer shall be made at the hearing.

(d) At the hearing the Division shall establish good cause for the action taken by it. Good cause is established after the Division establishes that the employer has failed to comply with the requirements of the issuance of the permit, and that to permit the continuance of the project under the circumstances would constitute a hazard to the employees.

The employer may appeal such revocation or suspension to the Director in the same manner specified in Section 341.2 of this Article. The filing of an appeal shall not stay the revocation or suspension, except as provided for in Labor Code Section 6506. The employer has the burden of establishing that the Division did not have good cause for the action taken.

NOTE: Authority cited: Sections 60.5, 6308, 6505 and 6506, Labor Code. Reference: Sections 6505 and 6506, Labor Code.

HISTORY

1. Amendment filed 10-25-74; effective thirtieth day thereafter (Register 74, No. 43).
2. Amendment filed 12-5-84; effective thirtieth day thereafter (Register 84, No. 49).

## Article 2.5. Registration—Asbestos-Related Work

### § 341.6. Registration Requirements.

(a) An employer who will be engaging in asbestos-related work, as defined, in subsection (b), involving 100 square feet or more of surface area of asbestos-containing material, computed in accordance with subsection (e) of this section, shall apply for and obtain a registration from the division prior to the commencement of any such work.

The registration shall be valid for one year after issuance by the division.

(b) "Asbestos-related work" means any activity which by disturbing asbestos-containing construction materials may release asbestos fibers into the air and which is not related to its manufacture, the mining or excavation of asbestos-bearing ore or materials, or the installation or repair of automotive materials containing asbestos.

(c) "Asbestos containing construction materials" means any manufactured construction material which contains more than 1/10th of 1% asbestos by weight.

(d) "Asbestos" means fibrous forms of various hydrated minerals including chrysotile (fibrous serpentine), crocidolite (fibrous riebeckite), amosite (fibrous cummingtonite-grunerite), fibrous tremolite, fibrous actinolite, and fibrous anthophyllite.

(e) The square footage of asbestos containing construction material, as defined in subsection (c) of this section, shall be determined by computing the surface area of any such material which will be handled during the course of the work being performed by the employer at a single worksite. If the asbestos containing construction material is situated in noncontiguous locations at a single worksite, the total square footage of such asbestos containing construction material shall be included in the computation, unless the work is performed as part of a routine and continuing maintenance and repair plan of existing fixtures or machinery where each component of such work involves less than 100 square feet.

"A single worksite," as used in this subsection, shall include all buildings, structures, premises, fixtures, machinery or other areas containing

asbestos containing construction material which will be handled during the course of the work for which the employer has contracted whether pursuant to single or multiple contracts with the same hirer.

This article is not intended to apply to asbestos-related work involving less than 100 square feet of asbestos containing construction material performed at separate unrelated worksites by the same employer even though the aggregate total of all such work equals or exceeds one hundred square feet annually.

NOTE: The requirements of this section apply only to asbestos-related work involving 100 square feet or more of surface area of asbestos-containing construction material. Compliance with this section shall constitute compliance with the reporting requirements of section 5208 of title 8 of the California Code of Regulations. For asbestos-related work involving less than 100 square feet of surface area of asbestos-containing construction material, and for other work involving the use or handling of asbestos, employers shall comply with the reporting requirements of section 5208 of title 8 of the California Code of Regulations.

NOTE: Authority cited: Sections 60.5, 6308 and 6501.5, Labor Code. Reference: Sections 6501.5, 6501.7 and 6501.8, Labor Code.

HISTORY

1. New section filed 5-22-87; operative upon filing (Register 87, No. 22).
2. Amendment filed 8-1-88 as an emergency; operative 8-1-88 (Register 88, No. 32). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 11-29-88.
3. Certificate of Compliance transmitted to OAL 11-29-88 and filed 12-29-88 (Register 89, No. 2).
4. Change without regulatory effect amending section (a) filed 9-14-90 pursuant to section 100, title 1, California Code of Regulations (Register 90, No. 43).

### § 341.7. Application for Registration and Renewal of Registration.

(a) An employer subject to the provisions of Section 341.6 of this Article shall register with the Division by applying for and obtaining a registration from the Division. Registration application forms may be obtained by writing or calling the headquarter offices of the Division located at 525 Golden Gate Avenue, San Francisco, CA 94102.

(b) Registration application form. A registration may be issued to any employer subject to the provisions of this article following the filing of a completed registration application form and full compliance with all the requirements thereof. All information and attachments given with the application for registration shall be given under penalty of perjury.

The registration application form shall contain the following:

(1) If a contractor, proof of certification if required pursuant to Section 7058.5 of the Business and Professions Code.

(2) Proof that sufficient health insurance coverage has been obtained to cover the entire cost of medical examinations and monitoring required by law or present proof that a $500 trust account has been provided for each employee engaged in such asbestos related work. In addition the employer must provide proof of coverage for worker's compensation insurance.

(3) Proof that all training and certification requirements for employees engaged in asbestos-related work have been completed in accordance with all requirements of law and section 5208, Title 8, California Code of Regulations.

(4) Proof that the employer has knowledge of the applicable occupational safety and health standards, and will comply with such standards and any other such lawful orders of the Division. In addition, that the conditions, practices, means, methods, operations or processes used or proposed to be used will provide a safe and healthful place of employment and that the employer is proficient in and has the necessary equipment to safely perform asbestos-related work.

(c) An employer may renew the registration by filing an application for renewal meeting the criteria of subsection (b) hereof, and paying a renewal fee as set forth in section 341.12(b) of this article. The application for renewal must be filed with the Division no later than thirty (30) days prior to the expiration date of the current registration.

NOTE: Authority cited: Sections 60.5, 6308 and 6501.5, Labor Code. Reference: Section 6501.5, Labor Code; Section 7058.5, Business and Professions Code; and Section 15376, Government Code.

HISTORY

1. New section filed 5-22-87; operative upon filing (Register 87, No. 22).
2. Amendment of subsection (b)(3) and new subsection (c) filed 12-29-88; operative 12-29-88 (Register 89, No. 2).

### § 341.8. Registration Application-Processing Time.

(a) Within 15 business days of receipt of an application for registration pursuant to this subsection, the Division shall inform the applicant in writing that it is either complete and accepted for filing or that it is deficient and what specific information or documentation is required to complete the application. An application is considered complete if it is in compliance with the requirements of Section 6501.5, Labor Code and the provisions of this subsection.

(b) Within 30 business days from date of filing of a completed application, the Division shall inform the applicant in writing of its decision regarding the application.

NOTE: Authority cited: Sections 60.5, 6308 and 6501.5, Labor Code; and Section 15376, Government Code. Reference: Section 6501.5, Labor Code; Section 7058.5, Business and Professions Code; and Section 15376, Government Code.

HISTORY

1. New section filed 5-22-87; operative upon filing (Register 87, No. 22).
2. Amendment filed 12-29-88; operative 12-29-88 (Register 89, No. 2).

### § 341.9. Notification to the Division—Asbestos-Related Work.

(a) When an employer will be conducting separate jobs or phases of work which are the subject of the registration required under this article, or where the work process may differ or is performed at noncontiguous locations, written notice shall be provided to the nearest District Office of the Division prior to commencement of any such work activity, except where the circumstances require immediate abatement action in which case, the employer shall immediately notify the nearest district office by telephone or otherwise orally of the start of work, to be confirmed in writing no later than 24 hours thereafter.

The written notice shall contain the following:

(1) The address of the job.

(2) The precise physical location of the job at the given address.

(3) The projected starting and completion date.

(4) The name of the certified supervisor who has sufficient experience and authority and who will be responsible for the asbestos-related work activity.

(5) The name of the qualified person who will be responsible for conducting air sampling, calibration of air sampling equipment, evaluation of sampling results, and respiratory fit testing as well as the evaluation of those tests.

(6) A description of the type of work to be performed, work practices that will be utilized, and an evaluation of the potential for exposure.

Any change in the information provided the Division by the written notice shall be reported to the Division at or before the time of the change. If notification of any change is made by telephone, or otherwise orally, such notification shall be confirmed immediately in writing but in any event no later than 24 hours after the change.

NOTE: Authority cited: Sections 60.5, 6308 and 6501.5, Labor Code. Reference: Section 6501.5, Labor Code.

HISTORY

1. New Section filed 5-22-87; operative upon filing (Register 87, No. 22).
2. Amendment filed 8-1-88 as an emergency; operative 8-1-88 (Register 88, No. 32). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 11-29-88.
3. Certificate of Compliance transmitted to OAL 11-29-88 and filed 12-29-88 (Register 89, No. 2).

### § 341.10. Posting and Notification—Asbestos-Related Work.

(a) The employer shall post a sign readable at 20 feet at the location where any asbestos-related work subject to the registration and notification requirements of this article is to take place stating "Danger-Asbestos. Cancer and Lung Hazard. Keep Out."

(b) The employer shall provide a copy of the registration before the commencement of any asbestos-related work to the prime contractor and

other employers at the site. A copy of the registration shall be posted at the jobsite beside the Cal/OSHA poster.

NOTE: Authority cited: Sections 60.5, 6308 and 6501.5, Labor Code. Reference: Section 6501.5, Labor Code.

HISTORY

1. New section filed 5–22–87; operative upon filing (Register 87, No. 22).

### § 341.11. Safety Conference.

The Employer shall conduct a safety conference prior to the commencement of any asbestos–related work subject to the registration and notification requirements of this article. The safety conference shall include representatives of the owner or contracting agency, the contractor, the employer, employees, and employee representatives. The safety conference shall include a discussion of employer's safety program and such means, methods, devices, processes, practices, conditions, or operations as the employer intends to utilize in providing a safe and healthful place of employment. The requirement of this section shall apply to all asbestos–handling jobs regardless of the amount of asbestos to be handled.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code. Reference: Sections 6501.5 and 6503.5, Labor Code.

HISTORY

1. New section filed 5–22–87; operative upon filing (Register 87, No. 22).

### § 341.12. Registration Fees and Renewal Fees.

(a) To cover the costs involved in investigating the registration application, and issuing the registration, an application fee of $350.00 is deemed reasonable and necessary.

(b) To cover the costs involved in investigating the application for renewal of registration, and issuing the renewed registration, a fee of $150.00 is deemed reasonable and necessary.

(c) Such application or renewal fee shall be paid by the employer to the Division of Occupational Safety and Health before the issuance of the registration or renewal.

NOTE: Authority cited: Sections 60.5, 6308 and 6501.5, Labor Code. Reference: Sections 6501.5, 6507 and 6508.5, Labor Code.

HISTORY

1. New section filed 5–22–87; operative upon filing (Register 87, No. 22).
2. Amendment filed 12–29–88; operative 12–29–88 (Register 89, No. 2).

### § 341.13. Denial of Registration.

(a) The Division shall deny the issuance of a registration if in its opinion, based on available facts, including the information provided by employer in the application for registration, the employer has failed to show that the conditions, practices, means, methods, operations or processes used or proposed to be used will provide a safe and healthful place of employment. A relevant factor in the Division's determination will be the employer's compliance history with the Division. In denying the registration to an applicant employer, the Division shall immediately notify the employer, in writing, specifying the reasons for such denial and shall send a copy thereof to the Director.

(b) Any employer denied a registration by the Division may appeal such denial to the Director. The Director shall hold a hearing at such place designated by the Director or his authorized designee for the convenience of the attending parties within two working days of the employer's appeal. Employer shall have the burden of establishing that it qualifies for the registration.

The hearing shall be presided by the director or his authorized designee and shall also be open to employees or employees' representative. The employer shall notify the employees or employees' representatives of such hearing a reasonable time prior to the holding of such hearing. Proof of such notification by the employer shall be made at the hearing.

(c) Following the hearing, the Director shall issue a decision. The Director's decision shall be final except for any rehearing or judicial review provided for by law. All requests for rehearings shall be filed with the Director within 10 days from the date of the Director's decision.

NOTE: Authority cited: Sections 60.5, 6308 and 6501.5, Labor Code. Reference: Sections 6308, 6308.5 and 6501.5, Labor Code.

HISTORY

1. New section filed 5–22–87; operative upon filing (Register 87, No. 22).
2. Change without regulatory effect deleting duplicate subsection (b) filed 9–14–90 pursuant to section 100, title 1, California Code of Regulations (Register 90, No. 43).

### § 341.14. Revocation or Suspension of Registration.

(a) The Division may at any time, upon a showing of good cause and after notice and an opportunity to be heard, revoke or suspend any registration issued pursuant to this article.

(b) Notice shall be in writing and served upon the employer at least 24 hours in advance of the hearing. Service shall be by personal service or certified mail to the employer's address as shown on the registration application form. The notice shall specify the reasons for the action taken by the Division in order that the employer may prepare for the hearing. The Division shall also include within the notice of revocation or suspension specific conditions which must be met before the employer will be entitled to apply for a new registration or continue asbestos–related work under an existing registration.

(c) The hearing shall be held as soon as possible at the Division's headquarter offices or at such other location as may be designated by the Director and shall be presided by the Chief of the Division or his authorized designee and shall also be open to any affected employees or their representatives.

The employer shall notify the employees or employees' representative, a reasonable time prior to such hearing. Proof of such notification by the employer shall be made at the hearing.

(d) At the hearing the Division shall establish good cause for the action taken by it. Good cause is deemed to exist if the Division establishes that the employer has failed to comply with the requirements of the issuance of the registration, and that to permit the continuance of the asbestos–related work activity under the circumstances could cause serious injury or illness to employees.

The employer may appeal such revocation or suspension to the Director in the same manner specified in Section 341.13 of this article. The filing of an appeal shall not stay the revocation or suspension, and such action shall remain in effect until such time as the employer presents proof that the specified written conditions required by the Division are met or until otherwise ordered after resolution of the appeal.

NOTE: Authority cited: Sections 60.5, 6308, 6501.5 and 6505.5, Labor Code. Reference: Sections 6308, 6308.5, 6501.5 and 6505.5, Labor Code.

HISTORY

1. New section filed 5–22–87; operative upon filing (Register 87, No. 22).

## Article 2.6. Asbestos Consultants and Site Surveillance Technicians

### § 341.15. Certification of Asbestos Consultants and Site Surveillance Technicians.

(a) Scope and Application.

Any individual performing services as an asbestos consultant or site surveillance technician as referenced and defined in section 1529(b) of Title 8 of the California Code of Regulations must apply for and obtain a certification pursuant to this article.

**Note:** This does not apply to individuals who perform preliminary site assessments or other such building inspection activities which may identify asbestos–containing construction materials but which are not for the primary purpose of finding asbestos–containing construction materials in buildings and evaluating the materials for the need of asbestos abatement.

(b) Application for Examination and Certification.

(1) Any individual desiring to be certified as set forth in subsection (a) of this section must submit an application for examination and certification as set forth herein. The application and all information and attachments shall be submitted under penalty of perjury, and accompanied by all applicable fees as set forth herein. No application will be accepted for processing by the Division unless accompanied by all required fees as set forth in subsection (c) herein.

Applications may be obtained from any District Office for the Division and shall be filed by mailing the completed application to the following address:

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
P.O. BOX 420603
SAN FRANCISCO, CA 94142
ATTENTION: ASBESTOS CONSULTANT CERTIFICATION

The application shall include:

(A) Type of certification desired: Asbestos Consultant or Site Surveillance Technician.

(B) Full name of the applicant including the name under which the individual will be conducting business under the certification, and any other names the applicant has used to conduct business as an asbestos consultant within five years previous to the date of the application.

(C) Birthdate and Social Security Number.

(D) Address (Employment and Home).

(E) Telephone Number (Work and Home).

(F) 2 copies of 1 1/2″ x 1 1/2″ current color photograph of applicant (passport type taken within the past 30 days).

(G) Copies of valid certificates from AHERA training providers approved by the Division.

**Note:** The Division will publish a list of approved AHERA training providers.

(1) Asbestos consultant applicants shall submit copies of AHERA training certificates for management planner, abatement project designer, abatement contractor and supervisor, and all subsequent annual refresher courses. The complete abatement project designer course certificate will be required only for applications submitted after July 1, 1994.

**Note:** The project designer refresher course will be sufficient for applications submitted prior to July 1, 1994.

(2) Site surveillance technician applicants shall submit copies of AHERA training completion certificates for inspector, and abatement contractor and supervisor, and all subsequent annual refresher courses. Certificates for abatement worker and abatement project designer may be submitted in lieu of the abatement contractor and supervisor certificate.

(H) Required fee(s).

(I) Description of qualifications as required pursuant to section 1529(o) of Title 8 of the California Code of Regulations outlining the applicant's educational qualifications, (attach copy of diploma, official transcript, or other proof), and description of qualifying work experience as specified in Business and Professions Code sections 7184 and 7185. Qualifying work experience includes technical work associated with asbestos consulting activities. Written references attesting to the applicant's qualifying work experience which are certified under the penalty of perjury are required.

(c) Examination Requirements for Certification.

(1) All applicants must pass a written examination as set forth herein.

(2) The examination shall be a closed book written examination pertaining to the subjects described in (o)(6)(A) and (o)(7)(A) of section 1529 of Title 8 of the California Code of Regulations. The minimum passing score shall be correctly answering 70% of all the questions in the written examination.

(3) The examination shall be conducted at various locations as determined by the Division and administered at least annually or at other intervals when necessary.

(d) Fees for Certification and Renewal.

(1) Fees for asbestos consultant:

| | |
|---|---|
| Application and Examination Fee | $500 |
| Annual Renewal Fee | $325 |

(2) Fees for site surveillance technician:

| | |
|---|---|
| Application and Examination Fee | $400 |
| Annual Renewal Fee | $270 |

(3) All fees must be paid at the time the application is filed with the Division. Except as set forth in Part (5) of this subsection, all fees are non–refundable.

(4) All required fees shall be made payable to the Asbestos Consultant Certification Fund.

(5) The Division may refund 75% of the fee when an application is withdrawn by the applicant within 15 business days of the initial submission of the application. The Division may refund 50% of the fee when the Division determines that the applicant is not qualified to take the examination. The Division shall make no refund of the fee when a qualified applicant fails the written examination.

(e) Processing of Application.

(1) Within 15 business days of receipt of an application for certification, the Division shall inform the applicant in writing of its determination either that the application is complete or that it is deficient. The notice shall specify what additional information or documentation is necessary.

(2) Within 45 business days from the date the Division has determined an application is complete the Division shall:

(A) Inform the applicant that the application for certification is denied, specifying the reasons for the denial; or

(B) Inform the applicant that the qualification requirements of this article have been satisfied and that the applicant may take the required written examination; and,

(C) Inform the applicant of the date, time, and location of the examination.

(f) Provisional Certification.

(1) The Division may issue a provisional certification to an applicant when:

(A) The applicant has submitted a completed application and is qualified to take the written examination.

(B) The Division is not able to schedule an examination and issue the certification within 45 business days after the Division has found the application to be complete as set forth in subsection (c) above.

(2) The provisional certification card will authorize the applicant to perform services as an asbestos consultant or site surveillance technician. The provisional certification shall expire 15 days after the scheduled examination date of the applicant who receives the provisional certification.

(3) Only one provisional certification may be issued to an applicant.

(g) Re–examinations.

Within 30 days of notification, any applicant who fails the examination may take the next scheduled examination. The request shall be made to the Division in writing and accompanied by a re–examination fee in the amount of 50% of the application and examination fee specified in subsection (d) above. Any applicant who fails is entitled to retake the examination one time. If an applicant fails the examination twice the request for certification will be denied and the applicant must submit a new application.

(h) Renewal or Replacement of Certification.

(1) A certification issued pursuant to this article shall be valid for one year from the date of issuance as designated on the certification. Any individual certified under this article may renew the certification by filing a request for renewal with the Division at least 60 days prior to the expiration date of the certification. Any individual who fails to renew as required herein must submit a new application for certification.

(2) All requests for renewal must be submitted with a current photograph, copies of required AHERA refresher training certificates, and the required renewal fee specified in subsection (d) above.

(3) Any person whose certification card has been lost or mutilated may request a replacement card from the Division. Such request shall be in writing and accompanied with a current photograph and replacement fee in the amount of 30% of the annual renewal fee specified in (d) of this section.

(i) Denial, Suspension, or Revocation of Certification.

(1) The Division may for good cause deny certification to an applicant. Good cause shall be deemed to exist when the applicant does not satisfy the qualification requirements of this article or has failed the written examination.

(2) The Division may for good cause and after notice and hearing suspend or revoke the certification of a person certified pursuant to this section. Good cause shall be deemed to exist if the person certified has committed gross negligence or fraud, or engaged in repeated acts of

negligence during the performance of activities subject to the certification.

**Note:** Revocation proceedings shall comply with the procedural requirements of Chapter 5 (commencing with section 11500) of Division 3 of Part 1 of Title 2 of the Government Code applicable to administrative adjudication.

(3) For denial or suspension of a certification, notice shall be given in writing and served upon the person certified at least 24 hours in advance of the hearing to suspend or revoke the certification. Service shall be by personal service or certified mail to the person's address as shown on the certification application or other address known to the Division. The notice shall specify the reasons for the action taken by the Division in order that the person may prepare for the hearing.

(4) Any applicant may appeal the denial, suspension or revocation to the Director. The appeal shall be in writing and made within 5 business days of receipt of the notification of the decision regarding the certification.

(5) The Director or authorized representative shall schedule a hearing within 5 business days of receipt of an appeal. The applicant shall have the burden of establishing that he/she qualifies for the certification at the hearing.

(6) Following the hearing the Director shall issue a decision. The Director's decision shall be final except for any rehearing or judicial review provided for by law. Requests for rehearings shall be filed with the Director within 5 business days of the Director's decision.

NOTE: Authority cited: Section 7180, Business and Professions Code; and Sections 60.5, 6308 and 9021.5, Labor Code. Reference: Sections 7184 and 7185, Business and Professions Code; Sections 9021.5, 9021.6 and 9021.8, Labor Code; and Section 1529, Title 8, California Code of Regulations.

HISTORY

1. New article 2.6 and section filed 8–6–92; operative 8–6–92 (Register 92, No. 32).
2. Amendment of subsections (d)(1)–(2) filed 11–19–2001 as an emergency; operative 11–19–2001 (Register 2001, No. 47). A Certificate of Compliance must be transmitted to OAL by 3–19–2002 or emergency language will be repealed by operation of law on the following day.
3. Certificate of Compliance as to 11–19–2001 order transmitted to OAL 3–4–2002 and filed 3–28–2002 (Register 2002, No. 13).

## Article 2.7. Approval of Courses and Course Providers

### § 341.16. Approval of Asbestos Training and Course Providers for Training Requirements Relating to Asbestos–Related Work and AHERA.

(a) Scope and Application.

(1) Any course provider (individual or business entity) providing asbestos training for the purpose of satisfying Division approved training requirements of 1529(k)(9)(B) for employees engaged in asbestos–related work or providing asbestos training for the purpose of satisfying the accreditation requirements of AHERA must submit the training program to the Division for approval in accordance with the provisions of this article.

(2) The Division will approve initial and annual refresher training courses for Construction Craft Worker, and for each of the following AHERA crafts or disciplines: Inspector, Management Planner, Abatement Project Designer, Abatement Contractor/Supervisor, and Asbestos Abatement Worker. Construction Craft Worker means any employee engaged in asbestos–related work (other than asbestos–related work included under the above named AHERA disciplines) requiring employer registration under Section 341.6 and Section 1529.

(3) AHERA as used in this Article means the Asbestos Hazard Emergency Response Act which is codified in 15 U.S.C. Section 2641, et seq.

(b) Requirements for Asbestos Course Approval.

(1) General Requirements.

(A) The course provider shall inform the Division in writing of the starting date, time and location for each training course scheduled at least 15 days prior to each starting date. In cases where the 15–day notice cannot be provided, FAX or telephone with written follow–up notification may be made as soon as possible before commencement of the training, but in no case later than 24 hours prior to commencement.

(B) The Asbestos Abatement Worker courses, including the course materials and examinations, shall be given in a language that is understood by both the course instructor and trainees.

(C) The instructor directing each course shall have at least one year of experience in teaching courses of a similar nature or other professional teaching qualifications in areas related to occupational safety and health issues. The instructor for the hands–on portion of the course shall have at least one year of relevant work experience in asbestos–related work.

(D) The course provider shall update the information submitted to the Division whenever a substantive change is made to information previously submitted for Division approval. Such notification shall be made in writing to the Division at the address given in (d)(1) of this Section no later than 24 hours after the change is instituted.

(E) Only individuals who have successfully completed an initial training course shall be allowed to take the corresponding refresher training course. Only holders of a certificate which is less than one year past the expiration date shown on the certificate shall be permitted to take the refresher training course.

(F) Training attendance is required for at least the duration specified for each course as set forth below. Breaks, including a lunch break, may be included in each eight hours of training.

(2) Specific Course Requirements

(A) Initial Course for Construction Craft Worker: the initial Construction Craft Worker course shall include the following:

1. The course curriculum and the course length in hours shall meet the requirements in Section 1529 for Class I, II, or III work or other federal requirements.

2. Hands–on training that is specific to the asbestos–related work for the construction craft of each employee attending the course.

NOTE: Except for AHERA courses, a course provider may combine trainees of various crafts for training on the common parts of the curricula involved when appropriate, and separate the trainees after the common training for the specific training peculiar to each craft involved.

(B) Refresher Course for Construction Craft Worker: the annual refresher shall include at least two hours of review of the important elements covered in the corresponding initial course, any changes in federal and state asbestos regulations, and the latest developments in the state of the art practices for asbestos–related work involving the specific construction craft.

(C) Initial AHERA Course: The initial course for each AHERA craft or discipline shall include and conform with the AHERA training course curriculum and required hours of instruction specified in the USEPA Model Accreditation Plan found in 40 CFR Part 763, Subpart E, Appendix C. The Model Accreditation Plan is included as Appendix A of this section.

1. When hands–on training is specified, the hands–on training must allow contractors, supervisors and workers to have actual experience performing tasks associated with asbestos abatement. Simulated asbestos materials shall be used instead of actual asbestos during the hands–on training.

2. The training course shall include a review of applicable federal and state regulations, including but not limited to, Sections 341.6, et seq. and Sections 1529 and 5208 of Title 8 of the California Code of Regulations.

(D) Annual AHERA Refresher Course: The refresher AHERA course shall include and conform with the AHERA training course curriculum described in the USEPA Model Accreditation Plan found in 40 CFR Part 763, Subpart E, Appendix C and shall be specific to each AHERA discipline.

1. The refresher training course shall include a review of the important elements covered in the initial course, any changes in federal, state, and local regulations, and the latest developments in state of the art practices.

2. A minimum of eight (8) hours training shall be given for the refresher training course for Asbestos Abatement Worker, Abatement Contractor/Supervisor and Abatement Project Designer. A minimum of four (4)

hours training shall be given for the refresher training course for Inspector. Only the rightful holder of a valid current AHERA Inspector certificate shall be allowed to take the Management Planner refresher accreditation training.

(E) Course Examinations.

1. As indicated in the table of examination requirements below an initial training course shall include an examination administered as a final part of the training course. The examination shall adequately cover the topics of the training course. Demonstration testing may be included as a part of the examination. The minimum number of multiple choice questions, each question having at least 4 choices for an answer, and the minimum passing score required for each type of training course are shown in Table 1.

Table 1
Course Examination Specifications

| *Craft/Discipline* | *Number of Questions* | *Passing Score* |
|---|---|---|
| Construction Craft Worker: (closed book exam) | 20 | 70% |
| Inspector (closed book exam): | 50 | 70% |
| Management Planner (closed book exam) | 50 | 70% |
| Asbestos Project Designer: (closed book exam) | 100 | 70% |
| Asbestos Contractor/Supervisor: (closed book exam) | 100 | 70% |
| Asbestos Abatement Worker: (closed book exam) | 50 | 70% |

2. Any trainee failing the examination may retake an equivalent but different examination one time; the course provider shall allow the trainee to retake the examination as soon as practicable after notifying the trainee of the exam results but no later than thirty (30) days after such date. If the trainee fails the second examination, the trainee must retake the course in order to take the examination again.

(F) Course Certificates.

1. The training provider shall issue certificates to trainees who complete a training course and pass the examination.

2. The certificate shall be issued within 15 business days after the course completion date. Compliance with this requirement may be delayed until the course provider receives payment for the course. The certificate shall be valid for one year after the successful completion of the examination.

3. Each certificate shall contain the following information:

A. The name, address and telephone number of the training provider that issued the certificate. The name of the training course with an indication that it is approved by the Division.

B. The Course Approval Number issued by the Division and a unique certificate number issued by the training course provider. If the certificate is for a Construction Craft Worker, also include on the certificate a designation of the type of craft and the class of asbestos work as described in Section 1529; e.g., Roofer – Class II, General Building Maintenance Worker – Class III, etc.

C. The name of the trainee.

D. The dates when the training course started and ended, and the date of the examination if applicable.

E. The certificate expiration date.

F. The name and signature of an authorized officer of the training course provider with a written statement that the person receiving the certificate has completed the required training and passed the examination (if one is required). In the case of training for AHERA disciplines (but not for Construction Craft Workers), the written statement shall also indicate that the training completed is that required for asbestos accreditation under Toxic Substances Control Act, Title II.

(c) Division Roster of Certificate Holders.

(1) The course provider shall provide the following information to the Division on forms provided by the Division with the appropriate fee specified in subsection (e) for each certificated trainee within 15 business days after each course examination.

(A) The name of the training course and its State of California course approval number.

(B) Full name of certificated trainee.

(C) The unique certificate number issued by the training course provider. If the certificate is for a Construction Craft Worker, also include a designation of the type of craft and the class of asbestos work.

(D) Home address of trainee.

(E) The expiration date of the certificate.

(2) The Division will utilize this information to develop a roster of individuals who have received a certificate of training from an approved course provider. Only those individuals who appear on the roster will be considered in compliance with the training requirements of AHERA or subsections 1529(k)(9) for employees engaged in asbestos–related work requiring employer registration.

NOTE: To provide an orderly transition individuals who possess valid and current AHERA certificates issued by USEPA approved or USEPA state approved course providers will be considered in compliance with this provision until December 31, 1999. After December 31, 1999, these individuals must appear on the Division roster showing initial or refresher AHERA certificates issued by Division approved AHERA course providers.

(d) Application for Course Approval.

(1) Any individual or organization that desires to become a course provider and satisfies the requirements of this article may apply to the Division for approval of an asbestos training course. The course provider shall complete a separate application for each training course for which approval is being sought using the following forms which are hereby incorporated by reference: Worker initial course, Form W–I 8/28/98; Contractor/Supervisor initial course, Form CS–I 8/28/98; Building Inspector initial course, Form BI–I 8/28/98; Project Designer initial course, Form PD–I 8/28/98; Management Planner initial course, Form MP–I 8/28/98; Construction Craft Worker initial course, Form CCW–I 8/28/98; Worker refresher course, Form W–R 8/28/98; Contractor/Supervisor refresher course, Form CS–R 8/28/98; Building Inspector refresher course, Form BI–R 8/28/98; Project Designer refresher course, Form PD–R 8/28/98; Management Planner refresher course, Form MP–R 8/28/98; Construction Craft Worker refresher course, Form CCW–R 8/28/98. Requests for application information and completed applications shall be sent to:

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
P.O. BOX 420603
SAN FRANCISCO, CA 94142

(2) The application shall include:

(A) The name of the training course.

(B) The name of the course provider, the name and title of the person whom the Division will contact regarding course approval matters, address, phone number, and the name and title of the person completing the application with his or her signature and a statement certifying that the information in the application is correct.

(C) The appropriate fee specified in subsection (e).

(D) Evidence of any previous approval from USEPA or another state for the training course.

(E) Materials describing the contents and parameters of the training course.

(F) Copies of all training documents and visual training aids (projection transparencies, etc.) used in the training course.

(G) A sample copy of the examination to be administered for the training course, including the test key.

(H) A sample copy of the certificate issued for the training course.

(I) The name(s) and qualifications of the instructor(s) of the training course.

(J) A list of the equipment which is used in the training course with a description of each type of equipment and the quantity of each type available on site for training.

(e) Fees for Course Approval.

(1) The application fee is $200 for the initial Construction Craft Worker course approval and $100 for the refresher course approval.

(2) The application fee is $600 for any initial AHERA course approval and $400 for any refresher AHERA course approval.

(3) Submitted application fees are not refundable. An appropriate application fee is required for each application.

(4) Fees are required to defray the cost of administering the approval process for assuring that approved providers continue to provide effective training as required. The continuing approval process includes course audits and the auditing activity for an approved provider will be related to the number of trainees trained by the provider and other information available to the Division. A roster fee shall be paid by the approved provider to fund this continuing approval process and to fund the maintenance of the roster specified in subsection (c). The course provider shall remit a roster fee of $5 for each certificated trainee of a Construction Craft Worker Course, and $10 for each certificated trainee of each AHERA training course as specified in Section 341.16(c)(1). The annual cumulative roster fees must total a minimum of $150 for each approved course. If the annual cumulative roster fees is less than $150 for an approved course and the course provider wants to maintain the approval for the course, the course provider must remit a supplemental amount needed to make the $150 minimum annual total by the end of the annual interval. The annual interval commences from the anniversary date of the issuance of approval for the approved course.

(5) Fees required by this subsection shall be payable to the Asbestos Training Approval Account.

(f) Processing of Application.

(1) Within 15 business days of receipt of an application for approval, the Division shall inform the applicant in writing whether the submitted application information required by (d)(2) is complete or additional information needs to be submitted.

(2) Within 45 business days from the date the Division has determined an application is complete, the Division shall inform the applicant that the training course is approved and issue a State of California Course Approval Number to the applicant or inform the applicant that the application for approval is denied, specifying the reason for denial. After an application is denied, a new application with another fee must be submitted if the applicant wishes to continue to seek course approval.

(g) Audit of Training Course.

(1) Each course provider, as a condition of approval, shall permit the Division to attend and audit any training course in part or in its entirety without prior notification to the course provider.

(2) The Division may administer a questionnaire to the trainees at the conclusion of an approved training course to evaluate training effectiveness.

(h) Suspension and Revocation of Course Approval and of Training Certificates.

(1) The Division may at any time, upon a showing of good cause and after notice and an opportunity to be heard, suspend or revoke any course approval or training certificate issued pursuant to this section.

(2) Notice shall be in writing and served upon the party receiving adverse action from the Division at least 24 hours in advance of the hearing. Service shall be by personal service or certified mail to the course provider's address as shown on the course approval application. The notice shall specify the reasons for the action proposed by the Division in order that the notified party may prepare for the hearing.

(3) The hearing shall be held as soon as possible at the Division's headquarters offices or at such other location as may be designated by the Division and shall be presided over by the Chief of the Division or his authorized designee.

(4) At the hearing the Division shall establish good cause for the action proposed by it. Good cause is deemed to exist if the Division establishes that the course provider issued a certificate, but did not provide the corresponding required training.

(5) The adversely affected party receiving a suspension or revocation from the Division may appeal such action to the Director. The Director shall hold a hearing at such place designated by the Director or his authorized designee for the convenience of the attending parties within two working days of the receipt of the course provider's appeal. The course provider shall have the burden of establishing that the suspension or revocation is not justified. The hearing shall be presided over by the Director or his authorized designee.

(6) Following the hearing, the Director shall issue a decision. The Director's decision shall be final except for any rehearing or judicial review provided for by law. All requests for rehearing shall be filed with the Director within 10 business days from the date of the Director's Decision by mailing or personally serving a request for rehearing to the Director.

NOTE: Authority cited: Sections 60.5, 6308 and 9021.9, Labor Code; and 40 CFR Part 763. Reference: Sections 6501.5 and 6501.8(c), Labor Code; Sections 7184 and 7185, Government Code; and Section 15 of the Asbestos School Hazard Abatement Reauthorization Act.

HISTORY

1. New article 2.7 (section 341.16), section and Appendix A filed 12-3-98; operative 1-2-99 (Register 98, No. 48).

## Appendix A

### 40 CFR Part 763, Appendix C to Subpart E, Asbestos Model Accreditation Plan.

I. Asbestos Model Accreditation Plan for States

The Asbestos Model Accreditation Plan (MAP) for States has eight components:

(A) Definitions
(B) Initial Training
(C) Examinations
(D) Continuing Education
(E) Qualifications
(F) Recordkeeping Requirements for Training Providers
(G) Deaccreditation
(H) Reciprocity

A. Definitions

For purposes of Appendix C:

1. "Friable asbestos–containing material (ACM)" means any material containing more than one percent asbestos which has been applied on ceilings, walls, structural members, piping, duct work, or any other part of a building, which when dry, may be crumbled, pulverized, or reduced to powder by hand pressure. The term includes non–friable asbestos–containing material after such previously non–friable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

2. "Friable asbestos–containing building material (ACBM)" means any friable ACM that is in or on interior structural members or other parts of a school or public and commercial building.

3. "Inspection" means an activity undertaken in a school building, or a public and commercial building, to determine the presence or location, or to assess the condition of, friable or non–friable asbestos–containing building material (ACBM) or suspected ACBM, whether by visual or physical examination, or by collecting samples of such material. This term includes reinspections of friable and non–friable known or assumed ACBM which has been previously identified. The term does not include the following:

a. Periodic surveillance of the type described in 40 CFR 763.92(b) solely for the purpose of recording or reporting a change in the condition of known or assumed ACBM;

b. Inspections performed by employees or agents of Federal, State, or local government solely for the purpose of determining compliance with applicable statutes or regulations; or

c. visual inspections of the type described in 40 CFR 763.90(i) solely for the purpose of determining completion of response actions.

4. "Major fiber release episode" means any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission, which involves the falling or dislodging of more than 3 square or linear feet of friable ACBM.

5. "Minor fiber release episode" means any uncontrolled or unintentional disturbance of ACBM, resulting in a visible emission, which involves the falling or dislodging of 3 square or linear feet or less of friable ACBM.

6. "Public and commercial building" means the interior space of any building which is not a school building, except that the term does not include any residential apartment building of fewer than 10 units or detached single-family homes. The term includes, but is not limited to: industrial and office buildings, residential apartment buildings and condominiums of 10 or more dwelling units, government-owned buildings, colleges, museums, airports, hospitals, churches, preschools, stores, warehouses and factories. Interior space includes exterior hallways connecting buildings, porticos, and mechanical systems used to condition interior space.

7. "Response action" means a method, including removal, encapsulation, enclosure, repair, and operation and maintenance, that protects human health and the environment from friable ACBM.

8. "Small-scale, short-duration activities (SSSD)" are tasks such as, but not limited to:

a. Removal of asbestos-containing insulation on pipes.

b. Removal of small quantities of asbestos-containing insulation on beams or above ceilings.

c. Replacement of an asbestos-containing gasket on a valve.

d. Installation or removal of a small section of drywall.

e. Installation of electrical conduits through or proximate to asbestos-containing materials.

SSSD can be further defined by the following considerations:

f. Removal of small quantities of ACM only if required in the performance of another maintenance activity not intended as asbestos abatement.

g. Removal of asbestos-containing thermal system insulation not to exceed amounts greater than those which can be contained in a single glove bag.

h. Minor repairs to damaged thermal system insulation which do not require removal.

i. Repairs to a piece of asbestos-containing wallboard.

j. Repairs, involving encapsulation, enclosure, or removal, to small amounts of friable ACM only if required in the performance of emergency or routine maintenance activity and not intended solely as asbestos abatement. Such work may not exceed amounts greater than those which can be contained in a single prefabricated mini-enclosure. Such an enclosure shall conform spatially and geometrically to the localized work area, in order to perform its intended containment function.

B. Initial Training

Training requirements for purposes of accreditation are specified both in terms of required subjects of instruction and in terms of length of training. Each initial training course has a prescribed curriculum and number of days of training. One day of training equals 8 hours, including breaks and lunch. Course instruction must be provided by EPA or State-approved instructors. EPA or State instructor approval shall be based upon a review of the instructor's academic credentials and/or field experience in asbestos abatement.

Beyond the initial training requirements, individual States may wish to consider requiring additional days of training for purposes of supplementing hands-on activities or for reviewing relevant state regulations. States also may wish to consider the relative merits of a worker apprenticeship program. Further, they might consider more stringent minimum qualification standards for the approval of training instructors. EPA recommends that the enrollment in any given course be limited to 25 students so that adequate opportunities exist for individual hands-on experience.

States have the option to provide initial training directly or approve other entities to offer training. The following requirements are for the initial training of persons required to have accreditation under TSCA Title II.

Training requirements for each of the five accredited disciplines are outlined below. Persons in each discipline perform a different job function and distinct role. Inspectors identify and assess the condition of ACBM, or suspect ACBM. Management planners use data gathered by inspectors to assess the degree of hazard posed by ACBM in schools to determine the scope and timing of appropriate response actions needed for schools. Project designers determine how asbestos abatement work should be conducted. Lastly, workers and contractor/supervisors carry out and oversee abatement work. In addition, a recommended training curriculum is also presented for a sixth discipline, which is not federally-accredited, that of "Project Monitor." Each accredited discipline and training curriculum is separate and distinct from the others. A person seeking accreditation in any of the five accredited MAP disciplines cannot attend two or more courses concurrently, but may attend such courses sequentially.

In several instances, initial training courses for a specific discipline (e.g., workers, inspectors) require hands-on training. For asbestos abatement contractor/supervisors and workers, hands-on training should include working with asbestos-substitute materials, fitting and using respirators, use of glovebags, donning protective clothing, and constructing a decontamination unit as well as other abatement work activities.

1. Workers

A person must be accredited as a worker to carry out any of the following activities with respect to friable ACBM in a school or public and commercial building: (1) A response action other than a SSSD activity, (2) a maintenance activity that disturbs friable ACBM other than a SSSD activity, or (3) a response action for a major fiber release episode. All persons seeking accreditation as asbestos abatement workers shall complete at least a 4-day training course as outlined below. The 4-day worker training course shall include lectures, demonstrations, at least 14 hours of hands-on training, individual respirator fit testing, course review, and an examination. Hands-on training must permit workers to have actual experience performing tasks associated with asbestos abatement. A person who is otherwise accredited as a contractor/supervisor may perform in the role of a worker without possessing separate accreditation as a worker.

Because of cultural diversity associated with the asbestos workforce, EPA recommends that States adopt specific standards for the approval of foreign language courses for abatement workers. EPA further recommends the use of audio-visual materials to complement lectures, where appropriate.

The training course shall adequately address the following topics:

(a) Physical characteristics of asbestos. Identification of asbestos, aerodynamic characteristics, typical uses, and physical appearance, and a summary of abatement control options.

(b) Potential health effects related to asbestos exposure. The nature of asbestos-related diseases; routes of exposure; dose-response relationships and the lack of a safe exposure level; the synergistic effect between cigarette smoking and asbestos exposure; the latency periods for asbestos-related diseases; a discussion of the relationship of asbestos exposure to asbestosis, lung cancer, mesothelioma, and cancers of other organs.

(c) Employee personal protective equipment. Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection; donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece-to-face seal (positive and negative-pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and handling of non-disposable clothing; and regulations covering personal protective equipment.

(d) State-of-the-art work practices. Proper work practices for asbestos abatement activities, including descriptions of proper construction; maintenance of barriers and decontamination enclosure systems; posi-

tioning of warning signs; lock–out of electrical and ventilation systems; proper working techniques for minimizing fiber release; use of wet methods; use of negative pressure exhaust ventilation equipment; use of high–efficiency particulate air (HEPA) vacuums; proper clean–up and disposal procedures; work practices for removal, encapsulation, enclosure, and repair of ACM; emergency procedures for sudden releases; potential exposure situations; transport and disposal procedures; and recommended and prohibited work practices.

(e) Personal hygiene. Entry and exit procedures for the work area; use of showers; avoidance of eating, drinking, smoking, and chewing (gum or tobacco) in the work area; and potential exposures, such as family exposure.

(f) Additional safety hazards. Hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards, scaffold and ladder hazards, slips, trips, and falls, and confined spaces.

(g) Medical monitoring. OSHA and EPA Worker Protection Rule requirements for physical examinations, including a pulmonary function test, chest X–rays, and a medical history for each employee.

(h) Air monitoring. Procedures to determine airborne concentrations of asbestos fibers, focusing on how personal air sampling is performed and the reasons for it.

(i) Relevant Federal, State, and local regulatory requirements, procedures, and standards. With particular attention directed at relevant EPA, OSHA, and State regulations concerning asbestos abatement workers.

(j) Establishment of respiratory protection programs.

(k) Course review. A review of key aspects of the training course.

2. Contractor/Supervisors

A person must be accredited as a contractor/supervisor to supervise any of the following activities with respect to friable ACBM in a school or public and commercial building: (1) A response action other than a SSSD activity, (2) a maintenance activity that disturbs friable ACBM other than a SSSD activity, or (3) a response action for a major fiber release episode. All persons seeking accreditation as asbestos abatement contractor/supervisors shall complete at least a 5–day training course as outlined below. The training course must include lectures, demonstrations, at least 14 hours of hands–on training, individual respirator fit testing, course review, and a written examination. Hands–on training must permit supervisors to have actual experience performing tasks associated with asbestos abatement.

EPA recommends the use of audiovisual materials to complement lectures, where appropriate.

Asbestos abatement supervisors include those persons who provide supervision and direction to workers performing response actions. Supervisors may include those individuals with the position title of foreman, working foreman, or leadman pursuant to collective bargaining agreements. At least one supervisor is required to be at the worksite at all times while response actions are being conducted. Asbestos workers must have access to accredited supervisors throughout the duration of the project.

The contractor/supervisor training course shall adequately address the following topics:

(a) The physical characteristics of asbestos and asbestos–containing materials. Identification of asbestos, aerodynamic characteristics, typical uses, physical appearance, a review of hazard assessment considerations, and a summary of abatement control options.

(b) Potential health effects related to asbestos exposure. The nature of asbestos–related diseases; routes of exposure; dose–response relationships and the lack of a safe exposure level; synergism between cigarette smoking and asbestos exposure; and latency period for diseases.

(c) Employee personal protective equipment. Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection, donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece–to–face seal (positive and negative–pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; and use, storage, and handling of non–disposable clothing; and regulations covering personal protective equipment.

(d) State–of–the–art work practices. Proper work practices for asbestos abatement activities, including descriptions of proper construction and maintenance of barriers and decontamination enclosure systems; positioning of warning signs; lock–out of electrical and ventilation systems; proper working techniques for minimizing fiber release; use of wet methods; use of negative pressure exhaust ventilation equipment; use of HEPA vacuums; and proper clean–up and disposal procedures. Work practices for removal, encapsulation, enclosure, and repair of ACM; emergency procedures for unplanned releases; potential exposure situations; transport and disposal procedures; and recommended and prohibited work practices. New abatement–related techniques and methodologies may be discussed.

(e) Personal hygiene. Entry and exit procedures for the work area; use of showers; and avoidance of eating, drinking, smoking, and chewing (gum or tobacco) in the work area. Potential exposures, such as family exposure, shall also be included.

(f) Additional safety hazards. Hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire and explosion hazards, scaffold and ladder hazards, slips, trips, and falls, and confined spaces.

(g) Medical monitoring. OSHA and EPA Worker Protection Rule requirements for physical examinations, including a pulmonary function test, chest X–rays and a medical history for each employee.

(h) Air monitoring. Procedures to determine airborne concentrations of asbestos fibers, including descriptions of aggressive air sampling, sampling equipment and methods, reasons for air monitoring, types of samples and interpretation of results.

EPA recommends that transmission electron microscopy (TEM) be used for analysis of final air clearance samples, and that sample analyses be performed by laboratories accredited by the National Institute of Standards and Technology's (NIST) National Voluntary Laboratory Accreditation Program (NVLAP).

(i) Relevant Federal, State, and local regulatory requirements, procedures, and standards, including:

(*i*) Requirements of TSCA Title II.

(*ii*) National Emission Standards for Hazardous Air Pollutants (40 CFR part 61), Subparts A (General Provisions) and M (National Emission Standard for Asbestos).

(*iii*) OSHA standards for permissible exposure to airborne concentrations of asbestos fibers and respiratory protection (29 CFR 1910.134).

(*iv*) OSHA Asbestos Construction Standard (29 CFR 1926.58).

(*v*) EPA Worker Protection Rule (40 CFR part 763, Subpart G).

(j) Respiratory Protection Programs and Medical Monitoring Programs.

(k) Insurance and liability issues. Contractor issues; worker's compensation coverage and exclusions; third–party liabilities and defenses; insurance coverage and exclusions.

(*l*) Recordkeeping for asbestos abatement projects. Records required by Federal, State, and local regulations; records recommended for legal and insurance purposes.

(m) Supervisory techniques for asbestos abatement activities. Supervisory practices to enforce and reinforce the required work practices and discourage unsafe work practices.

(n) Contract specifications. Discussions of key elements that are included in contract specifications.

(o) Course review. A review of key aspects of the training course.

3. Inspector

All persons who inspect for ACBM in schools or public and commercial buildings must be accredited. All persons seeking accreditation as an inspector shall complete at least a 3–day training course as outlined be-

low. The course shall include lectures, demonstrations, 4 hours of hands–on training, individual respirator fit–testing, course review, and a written examination.

EPA recommends the use of audiovisual materials to complement lectures, where appropriate. Hands–on training should include conducting a simulated building walk–through inspection and respirator fit testing. The inspector training course shall adequately address the following topics:

(a) Background information on asbestos. Identification of asbestos, and examples and discussion of the uses and locations of asbestos in buildings; physical appearance of asbestos.

(b) Potential health effects related to asbestos exposure. The nature of asbestos–related diseases; routes of exposure; dose–response relationships and the lack of a safe exposure level; the synergistic effect between cigarette smoking and asbestos exposure; the latency periods for asbestos–related diseases; a discussion of the relationship of asbestos exposure to asbestosis, lung cancer, mesothelioma, and cancers of other organs.

(c) Functions/qualifications and role of inspectors. Discussions of prior experience and qualifications for inspectors and management planners; discussions of the functions of an accredited inspector as compared to those of an accredited management planner; discussion of inspection process including inventory of ACM and physical assessment.

(d) Legal liabilities and defenses. Responsibilities of the inspector and management planner; a discussion of comprehensive general liability policies, claims–made, and occurrence policies, environmental and pollution liability policy clauses; state liability insurance requirements; bonding and the relationship of insurance availability to bond availability.

(e) Understanding building systems. The interrelationship between building systems, including: an overview of common building physical plan layout; heat, ventilation, and air conditioning (HVAC) system types, physical organization, and where asbestos is found on HVAC components; building mechanical systems, their types and organization, and where to look for asbestos on such systems; inspecting electrical systems, including appropriate safety precautions; reading blueprints and as–built drawings.

(f) Public/employee/building occupant relations. Notifying employee organizations about the inspection; signs to warn building occupants; tact in dealing with occupants and the press; scheduling of inspections to minimize disruptions; and education of building occupants about actions being taken.

(g) Pre–inspection planning and review of previous inspection records. Scheduling the inspection and obtaining access; building record review; identification of probable homogeneous areas from blueprints or as–built drawings; consultation with maintenance or building personnel; review of previous inspection, sampling, and abatement records of a building; the role of the inspector in exclusions for previously performed inspections.

(h) Inspecting for friable and non–friable ACM and assessing the condition of friable ACM. Procedures to follow in conducting visual inspections for friable and non–friable ACM; types of building materials that may contain asbestos; touching materials to determine friability; open return air plenums and their importance in HVAC systems; assessing damage, significant damage, potential damage, and potential significant damage; amount of suspected ACM, both in total quantity and as a percentage of the total area; type of damage; accessibility; material's potential for disturbance; known or suspected causes of damage or significant damage; and deterioration as assessment factors.

(i) Bulk sampling/documentation of asbestos. Detailed discussion of the "Simplified Sampling Scheme for Friable Surfacing Materials (EPA 560/5–85–030a October 1985)"; techniques to ensure sampling in a randomly distributed manner for other than friable surfacing materials; sampling of non–friable materials; techniques for bulk sampling; inspector's sampling and repair equipment; patching or repair of damage from sampling; discussion of polarized light microscopy; choosing an accredited laboratory to analyze bulk samples; quality control and quality assurance procedures. EPA's recommendation that all bulk samples collected from school or public and commercial buildings be analyzed by a laboratory accredited under the NVLAP administered by NIST.

(j) Inspector respiratory protection and personal protective equipment. Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection; donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece–to–face seal (positive and negative–pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and handling of non–disposable clothing.

(k) Recordkeeping and writing the inspection report. Labeling of samples and keying sample identification to sampling location; recommendations on sample labeling; detailing of ACM inventory; photographs of selected sampling areas and examples of ACM condition; information required for inclusion in the management plan required for school buildings under TSCA Title II, section 203(i)(1). EPA recommends that States develop and require the use of standardized forms for recording the results of inspections in schools or public or commercial buildings, and that the use of these forms be incorporated into the curriculum of training conducted for accreditation.

(*l*) Regulatory review. The following topics should be covered: National Emission Standards for Hazardous Air Pollutants (NESHAP; 40 CFR part 61, Subparts A and M); EPA Worker Protection Rule (40 CFR part 763, Subpart G); OSHA Asbestos Construction Standard (29 CFR 1926.58); OSHA respirator requirements (29 CFR 1910.134); the Asbestos–Containing Materials in Schools Rule (40 CFR Part 763, Subpart E); applicable State and local regulations, and differences between Federal and State requirements where they apply, and the effects, if any, on public and nonpublic schools or commercial or public buildings.

(m) Field trip. This includes a field exercise, including a walk–through inspection; on–site discussion about information gathering and the determination of sampling locations; on–site practice in phsical assessment; classroom discussion of field exercise.

(n) Course review. A review of key aspects of the training course.

4. Management Planner

All persons who prepare management plans for schools must be accredited. All persons seeking accreditation as management planners shall complete a 3–day inspector training course as outlined above and a 2–day management planner training course. Possession of current and valid inspector accreditation shall be a prerequisite for admission to the management planner training course. The management planner course shall include lectures, demonstrations, course review, and a written examination.

EPA recommends the use of audiovisual materials to complement lectures, where appropriate.

TSCA Title II does not require accreditation for persons performing the management planner role in public and commercial buildings. Nevertheless, such persons may find this training and accreditation helpful in preparing them to design or administer asbestos operations and maintenance programs for public and commercial buildings.

The management planner training course shall adequately address the following topics:

(a) Course overview. The role and responsibilities of the management planner; operations and maintenance programs; setting work priorities; protection of building occupants.

(b) Evaluation/interpretation of survey results. Review of TSCA Title II requirements for inspection and management plans for school buildings as given in section 203(i)(1) of TSCA Title II; interpretation of field data and laboratory results; comparison of field inspector's data sheet with laboratory results and site survey.

(c) Hazard assessment. Amplification of the difference between physical assessment and hazard assessment; the role of the management plan-

ner in hazard assessment; explanation of significant damage, damage, potential damage, and potential significant damage; use of a description (or decision tree) code for assessment of ACM; assessment of friable ACM; relationship of accessibility, vibration sources, use of adjoining space, and air plenums and other factors to hazard assessment.

(d) Legal implications. Liability; insurance issues specific to planners; liabilities associated with interim control measures, in–house maintenance, repair, and removal; use of results from previously performed inspections.

(e) Evaluation and selection of control options. Overview of encapsulation, enclosure, interim operations and maintenance, and removal; advantages and disadvantages of each method; response actions described via a decision tree or other appropriate method; work practices for each response action; staging and prioritizing of work in both vacant and occupied buildings; the need for containment barriers and decontamination in response actions.

(f) Role of other professionals. Use of industrial hygienists, engineers, and architects in developing technical specifications for response actions; any requirements that may exist for architect sign–off of plans; team approach to design of high–quality job specifications.

(g) Developing an operations and maintenance (O&M) plan. Purpose of the plan; discussion of applicable EPA guidance documents; what actions should be taken by custodial staff; proper cleaning procedures; steam cleaning and HEPA vacuuming; reducing disturbance of ACM; scheduling O&M for off–hours; rescheduling or canceling renovation in areas with ACM; boiler room maintenance; disposal of ACM; in–house procedures for ACM–bridging and penetrating encapsulants; pipe fittings; metal sleeves; polyvinyl chloride (PVC), canvas, and wet wraps; muslin with straps, fiber mesh cloth; mineral wool, and insulating cement; discussion of employee protection programs and staff training; case study in developing an O&M plan (development, implementation process, and problems that have been experienced).

(h) Regulatory review. Focusing on the OSHA Asbestos Construction Standard found at 29 CFR 1926.58; the National Emission Standard for Hazardous Air Pollutants (NESHAP) found at 40 CFR part 61, Subparts A (General Provisions) and M (National Emission Standard for Asbestos), EPA Worker Protection Rule found at 40 CFR part 763, Subpart G; TSCA Title II; applicable State regulations.

(i) Recordkeeping for the management planner. Use of field inspector's data sheet along with laboratory results; on–going recordkeeping as a means to track asbestos disturbance; procedures for recordkeeping. EPA recommends that States require the use of standardized forms for purposes of management plans and incorporate the use of such forms into the initial training course for management planners.

(j) Assembling and submitting the management plan. Plan requirements for schools in TSCA Title II section 203(i)(1); the management plan as a planning tool.

(k) Financing abatement actions. Economic analysis and cost estimates; development of cost estimates; present costs of abatement versus future operation and maintenance costs; Asbestos School Hazard Abatement Act grants and loans.

(*l*) Course review. A review of key aspects of the training course.

5. Project Designer

A person must be accredited as a project designer to design any of the following activities with respect to friable ACBM in a school or public and commercial building: (1) A response action other than a SSSD maintenance activity, (2) a maintenance activity that disturbs friable ACBM other than a SSSD maintenance activity, or (3) a response action for a major fiber release episode. All persons seeking accreditation as a project designer shall complete at least a minimum 3–day training course as outlined below. The project designer course shall include lectures, demonstrations, a field trip, course review and a written examination.

EPA recommends the use of audiovisual materials to complement lectures, where appropriate.

The abatement project designer training course shall adequately address the following topics:

(a) Background information on asbestos. Identification of asbestos; examples and discussion of the uses and locations of asbestos in buildings; physical appearance of asbestos.

(b) Potential health effects related to asbestos exposure. Nature of asbestos–related diseases; routes of exposure; dose–response relationships and the lack of a safe exposure level; the synergistic effect between cigarette smoking and asbestos exposure; the latency period of asbestos–related diseases; a discussion of the relationship between asbestos exposure and asbestosis, lung cancer, mesothelioma, and cancers of other organs.

(c) Overview of abatement construction projects. Abatement as a portion of a renovation project; OSHA requirements for notification of other contractors on a multi–employer site (29 CFR 1926.58).

(d) Safety system design specifications. Design, construction, and maintenance of containment barriers and decontamination enclosure systems; positioning of warning signs; electrical and ventilation system lock–out; proper working techniques for minimizing fiber release; entry and exit procedures for the work area; use of wet methods; proper techniques for initial cleaning; use of negative–pressure exhaust ventilation equipment; use of HEPA vacuums; proper clean–up and disposal of asbestos; work practices as they apply to encapsulation, enclosure, and repair; use of glove bags and a demonstration of glove bag use.

(e) Field trip. A visit to an abatement site or other suitable building site, including on–site discussions of abatement design and building walk–through inspection. Include discussion of rationale for the concept of functional spaces during the walk–through.

(f) Employee personal protective equipment. Classes and characteristics of respirator types; limitations of respirators; proper selection, inspection; donning, use, maintenance, and storage procedures for respirators; methods for field testing of the facepiece–to–face seal (positive and negative–pressure fit checks); qualitative and quantitative fit testing procedures; variability between field and laboratory protection factors that alter respiratory fit (e.g., facial hair); the components of a proper respiratory protection program; selection and use of personal protective clothing; use, storage, and handling of non–disposable clothing.

(g) Additional safety hazards. Hazards encountered during abatement activities and how to deal with them, including electrical hazards, heat stress, air contaminants other than asbestos, fire, and explosion hazards.

(h) Fiber aerodynamics and control. Aerodynamic characteristics of asbestos fibers; importance of proper containment barriers; settling time for asbestos fibers; wet methods in abatement; aggressive air monitoring following abatement; aggressive air movement and negative–pressure exhaust ventilation as a clean–up method.

(i) Designing abatement solutions. Discussions of removal, enclosure, and encapsulation methods; asbestos waste disposal.

(j) Final clearance process. Discussion of the need for a written sampling rationale for aggressive final air clearance; requirements of a complete visual inspection; and the relationship of the visual inspection to final air clearance. EPA recommends the use of TEM for analysis of final air clearance samples. These samples should be analyzed by laboratories accredited under the NIST NVLAP.

(k) Budgeting/cost estimating. Development of cost estimates; present costs of abatement versus future operation and maintenance costs; setting priorities for abatement jobs to reduce costs.

(*l*) Writing abatement specifications. Preparation of and need for a written project design; means and methods specifications versus performance specifications; design of abatement in occupied buildings; modification of guide specifications for a particular building; worker and building occupant health/medical considerations; replacement of ACM with non–asbestos substitutes.

(m) Preparing abatement drawings. Significance and need for drawings, use of as–built drawings as base drawings; use of inspection photographs and on–site reports; methods of preparing abatement drawings;

diagramming containment barriers; relationship of drawings to design specifications; particular problems related to abatement drawings.

(n) Contract preparation and administration.

(o) Legal/liabilities/defenses. Insurance considerations; bonding; hold-harmless clauses; use of abatement contractor's liability insurance; claims made versus occurrence policies.

(p) Replacement. Replacement of asbestos with asbestos-free substitutes.

(q) Role of other consultants. Development of technical specification sections by industrial hygienists or engineers; the multi-disciplinary team approach to abatement design.

(r) Occupied buildings. Special design procedures required in occupied buildings; education of occupants; extra monitoring recommendations; staging of work to minimize occupant exposure; scheduling of renovation to minimize exposure.

(s) Relevant Federal, State, and local regulatory requirements, procedures and standards, including, but not limited to:

(*i*) Requirements of TSCA Title II.

(*ii*) National Emission Standards for Hazardous Air Pollutants, (40 CFR part 61) subparts A (General Provisions) and M (National Emission Standard for Asbestos).

(*iii*) OSHA Respirator Standard found at 29 CFR 1910.134.

(*iv*) EPA Worker Protection Rule found at 40 CFR part 763, subpart G.

(*v*) OSHA Asbestos Construction Standard found at 29 CFR 1926.58.

(*vi*) OSHA Hazard Communication Standard found at 29 CFR 1926.59.

(t) Course review. A review of key aspects of the training course.

6. Project Monitor

EPA recommends that States adopt training and accreditation requirements for persons seeking to perform work as project monitors. Project monitors observe abatement activities performed by contractors and generally serve as a building owner's representative to ensure that abatement work is completed according to specification and in compliance with all relevant statutes and regulations. They may also perform the vital role of air monitoring for purposes of determining final clearance. EPA recommends that a State seeking to accredit individuals as project monitors consider adopting a minimum 5-day training course covering the topics outlined below. The course outlined below consists of lectures and demonstrations, at least 6 hours of hands-on training, course review, and a written examination. The hands-on training component might be satisfied by having the student simulate participation in or performance of any of the relevant job functions or activities (or by incorporation of the workshop component described in item "n" below of this unit).

EPA recommends that the project monitor training course adequately address the following topics:

(a) Roles and responsibilities of the project monitor. Definition and responsibilities of the project monitor, including regulatory/specification compliance monitoring, air monitoring, conducting visual inspections, and final clearance monitoring.

(b) Characteristics of asbestos and asbestos-containing materials. Typical uses of asbestos; physical appearance of asbestos; review of asbestos abatement and control techniques; presentation of the health effects of asbestos exposure, including routes of exposure, dose-response relationships, and latency periods for asbestos-related diseases.

(c) Federal asbestos regulations. Overview of pertinent EPA regulations, including: NESHAP, 40 CFR part 61, subparts A and M; AHERA, 40 CFR part 763, subpart E; and the EPA Worker Protection Rule, 40 CFR part 763, subpart G. Overview of pertinent OSHA regulations, including: Construction Industry Standard for Asbestos, 29 CFR 1926.58; Respirator Standard, 29 CFR 1910.134; and the Hazard Communication Standard, 29 CFR 1926.59. Applicable State and local asbestos regulations; regulatory interrelationships.

(d) Understanding building construction and building systems. Building construction basics, building physical plan layout; understanding building systems (HVAC, electrical, etc.); layout and organization, where asbestos is likely to be found on building systems; renovations and the effect of asbestos abatement on building systems.

(e) Asbestos abatement contracts, specifications, and drawings. Basic provisions of the contract; relationships between principle parties, establishing chain of command; types of specifications, including means and methods, performance, and proprietary and nonproprietary; reading and interpreting records and abatement drawings; discussion of change orders; common enforcement responsibilities and authority of project monitor.

(f) Response actions and abatement practices. Pre-work inspections; pre-work considerations, precleaning of the work area, removal of furniture, fixtures, and equipment; shutdown/modification of building systems; construction and maintenance of containment barriers, proper demarcation of work areas; work area entry/exit, hygiene practices; determining the effectiveness of air filtration equipment; techniques for minimizing fiber release, wet methods, continuous cleaning; abatement methods other than removal; abatement area clean-up procedures; waste transport and disposal procedures; contingency planning for emergency response.

(g) Asbestos abatement equipment. Typical equipment found on an abatement project; air filtration devices, vacuum systems, negative pressure differential monitoring; HEPA filtration units, theory of filtration, design/construction of HEPA filtration units, qualitative and quantitative performance of HEPA filtration units, sizing the ventilation requirements, location of HEPA filtration units, qualitative and quantitative tests of containment barrier integrity; best available technology.

(h) Personal protective equipment. Proper selection of respiratory protection; classes and characteristics of respirator types, limitations of respirators; proper use of other safety equipment, protective clothing selection, use, and proper handling, hard/bump hats, safety shoes; breathing air systems, high pressure v. low pressure, testing for Grade D air, determining proper backup air volumes.

(i) Air monitoring strategies. Sampling equipment, sampling pumps (low v. high volume), flow regulating devices (critical and limiting orifices), use of fibrous aerosol monitors on abatement projects; sampling media, types of filters, types of cassettes, filter orientation, storage and shipment of filters; calibration techniques, primary calibration standards, secondary calibration standards, temperature/pressure effects, frequency of calibration, recordkeeping and field work documentation, calculations; air sample analysis, techniques available and limitations of AHERA on their use, transmission electron microscopy (background to sample preparation and analysis, air sample conditions which prohibit analysis, EPA's recommended technique for analysis of final air clearance samples), phase contrast microscopy (background to sample preparation, and AHERA's limits on the use of phase contrast micrscopy), what each technique measures; analytical methodologies, AHERA TEM protocol, NIOSH 7400, OSHA reference method (non clearance), EPA recommendation for clearance (TEM); sampling strategies for clearance monitoring, types of air samples (personal breathing zone v. fixed-station area) sampling location and objectives (pre-abatement, during abatement, and clearance monitoring), number of samples to be collected, minimum and maximum air volumes, clearance monitoring (post-visual-inspection) (number of samples required, selection of sampling locations, period of sampling, aggressive sampling, interpretations of sampling results, calculations), quality assurance; special sampling problems, crawl spaces, acceptable samples for laboratory analysis, sampling in occupied buildings (barrier monitoring).

(j) Safety and health issues other than asbestos. Confined-space entry, electrical hazards, fire and explosion concerns, ladders and scaffolding, heat stress, air contaminants other than asbestos, fall hazards, hazardous materials on abatement projects.

(k) Conducting visual inspections. Inspections during abatement, visual inspections using the ASTM E1368 document; conducting inspections for completeness of removal; discussion of "how clean is clean?"

(*l*) Legal responsibilities and liabilities of project monitors. Specification enforcement capabilities; regulatory enforcement; licensing; powers delegated to project monitors through contract documents.

(m) Recordkeeping and report writing. Developing project logs/daily logs (what should be included, who sees them); final report preparation; recordkeeping under Federal regulations.

(n) Workshops (6 hours spread over 3 days). Contracts, specifications, and drawings: This workshop could consist of each participant being issued a set of contracts, specifications, and drawings and then being asked to answer questions and make recommendations to a project architect, engineer or to the building owner based on given conditions and these documents.

Air monitoring strategies/asbestos abatement equipment: This workshop could consist of simulated abatement sites for which sampling strategies would have to be developed (i.e., occupied buildings, industrial situations). Through demonstrations and exhibition, the project monitor may also be able to gain a better understanding of the function of various pieces of equipment used on abatement projects (air filtration units, water filtration units, negative pressure monitoring devices, sampling pump calibration devices, etc.).

Conducting visual inspections: This workshop could consist, ideally, of an interactive video in which a participant is "taken through" a work area and asked to make notes of what is seen. A series of questions will be asked which are designed to stimulate a person's recall of the area. This workshop could consist of a series of two or three videos with different site conditions and different degrees of cleanliness.

C. Examinations

1. Each State shall administer a closed book examination or designate other entities such as State–approved providers of training courses to administer the closed–book examination to persons seeking accreditation who have completed an initial training course. Demonstration testing may also be included as part of the examination. A person seeking initial accreditation in a specific discipline must pass the examination for that discipline in order to receive accreditation. For example, a person seeking accreditation as an abatement project designer must pass the State's examination for abatement project designer.

States may develop their own examinations, have providers of training courses develop examinations, or use standardized examinations developed for purposes of accreditation under TSCA Title II. In addition, States may supplement standardized examinations with questions about State regulations. States may obtain commercially developed standardized examinations, develop standardized examinations independently, or do so in cooperation with other States, or with commercial or non–profit providers on a regional or national basis. EPA recommends the use of standardized, scientifically–validated testing instruments, which may be beneficial in terms of both promoting competency and in fostering accreditation reciprocity between States.

Each examination shall adequately cover the topics included in the training course for that discipline. Each person who completes a training course, passes the required examination, and fulfills whatever other requirements the State imposes must receive an accreditation certificate in a specific discipline. Whether a State directly issues accreditation certificates, or authorizes training providers to issue accreditation certificates, each certificate issued to an accredited person must contain the following minimum information:

a. A unique certificate number

b. Name of accredited person

c. Discipline of the training course completed.

d. Dates of the training course.

e. Date of the examination.

f. An expiration date of 1 year after the date upon which the person successfully completed the course and examination.

g. The name, address, and telephone number of the training provider that issued the certificate.

h. A statement that the person receiving the certificate has completed the requisite training for asbestos accreditation under TSCA Title II.

States or training providers who reaccredit persons based upon completion of required refresher training must also provide accreditation certificates with all of the above information, except the examination date may be omitted if a State does not require a refresher examination for reaccreditation.

Where a State licenses accredited persons but has authorized training providers to issue accreditation certificates, the State may issue licenses in the form of photo–identification cards. Where this applies, EPA recommends that the State licenses should include all of the same information required for the accreditation certificates. A State may also choose to issue photo–identification cards in addition to the required accreditation certificates.

Accredited persons must have their initial and current accreditation certificates at the location where they are conducting work.

2. The following are the requirements for examination in each discipline:

a. Worker:

i. 50 multiple–choice questions

ii. Passing score: 70 percent correct

b. Contractor/Supervisor:

i. 100 multiple–choice questions

ii. Passing score: 70 percent correct

c. Inspector:

i. 50 Multiple–choice questions

ii. Passing score: 70 percent correct

d. Management Planner:

i. 50 Multiple–choice questions

ii. Passing score: 70 percent correct

e. Project Designer:

i. 100 multiple–choice questions

ii. Passing score: 70 percent correct

D. Continuing Education

For all disciplines, a State's accreditation program shall include annual refresher training as a requirement for reaccreditation as indicated below:

1. Workers: One full day of refresher training.

2. Contractor/Supervisors: One full day of refresher training.

3. Inspectors: One half–day of refresher training.

4. Management Planners: One half–day of inspector refresher training and one half–day of refresher training for management planners.

5. Project Designers: One full day of refresher training.

The refresher courses shall be specific to each discipline. Refresher courses shall be conducted as separate and distinct courses and not combined with any other training during the period of the refresher course. For each discipline, the refresher course shall review and discuss changes in Federal, State, and local regulations, developments in state–of–the–art procedures, and a review of key aspects of the initial training course as determined by the State. After completing the annual refresher course, persons shall have their accreditation extended for an additional year from the date of the refresher course. A State may consider requiring persons to pass reaccreditation examinations at specific intervals (for example, every 3 years).

EPA recommends that States formally establish a 12–month grace period to enable formerly accredited persons with expired certificates to complete refresher training and have their accreditation status reinstated without having to re–take the initial training course.

E. Qualifications

In addition to requiring training and an examination, a State may require candidates for accreditation to meet other qualification and/or experience standards that the State considers appropriate for some or all disciplines. States may choose to consider requiring qualifications similar to the examples outlined below for inspectors, management planners and project designers. States may modify these examples as appropriate. In

addition, States may want to include some requirements based on experience in performing a task directly as a part of a job or in an apprenticeship role. They may also wish to consider additional criteria for the approval of training course instructors beyond those prescribed by EPA.

1. Inspectors: Qualifications—possess a high school diploma. States may want to require an Associate's Degree in specific fields (e.g., environmental or physical sciences).

2. Management Planners: Qualifications—Registered architect, engineer, or certified industrial hygienist or related scientific field.

3. Project Designers: Qualifications—registered architect, engineer, or certified industrial hygienist.

4. Asbestos Training Course Instructor: Qualifications—academic credentials and/or field experience in asbestos abatement.

EPA recommends that States prescribe minimum qualification standards for training instructors employed by training providers.

F. Recordkeeping Requirements for Training Providers

All approved providers of accredited asbestos training courses must comply with the following minimum recordkeeping requirements.

1. Training course materials. A training provider must retain copies of all instructional materials used in the delivery of the classroom training such as student manuals, instructor notebooks and handouts.

2. Instructor qualifications. A training provider must retain copies of all instructors' resumes, and the documents approving each instructor issued by either EPA or a State. Instructors must be approved by either EPA or a State before teaching courses for accreditation purposes. A training provider must notify EPA or the State, as appropriate, in advance whenever it changes course instructors. Records must accurately identify the instructors that taught each particular course for each date that a course is offered.

3. Examinations. A training provider must document that each person who receives an accreditation certificate for an initial training course has achieved a passing score on the examination. These records must clearly indicate the date upon which the exam was administered, the training course and discipline for which the exam was given, the name of the person who proctored the exam, a copy of the exam, and the name and test score of each person taking the exam. The topic and dates of the training course must correspond to those listed on that person's accreditation certificate. States may choose to apply these same requirements to examinations for refresher training courses.

4. Accreditation certificates. The training providers or States, whichever issues the accreditation certificate, shall maintain records that document the names of all persons who have been awarded certificates, their certificate numbers, the disciplines for which accreditation was conferred, training and expiration dates, and the training location. The training provider or State shall maintain the records in a manner that allows verification by telephone of the required information.

5. Verification of certificate information. EPA recommends that training providers of refresher training courses confirm that their students possess valid accreditation before granting course admission. EPA further recommends that training providers offering the initial management planner training course verify that students have met the prerequisite of possessing valid inspector accreditation at the time of course admission.

6. Records retention and access.

(a) The training provider shall maintain all required records for a minimum of 3 years. The training provider, however, may find it advantageous to retain these records for a longer period of time.

(b) The training provider must allow reasonable access to all of the records required by the MAP, and to any other records which may be required by States for the approval of asbestos training providers or the accreditation of asbestos training courses, to both EPA and to State Agencies, on request. EPA encourages training providers to make this information equally accessible to the general public.

(c) If a training provider ceases to conduct training, the training provider shall notify the approving government body (EPA or the State) and give it the opportunity to take possession of that providers asbestos training records.

G. Deaccreditation

1. States must establish criteria and procedures for deaccrediting persons accredited as workers, contractor/supervisors, inspectors, management planners, and project designers. States must follow their own administrative procedures in pursuing deaccreditation actions. At a minimum, the criteria shall include:

(a) Performing work requiring accreditation at a job site without being in physical possession of initial and current accreditation certificates;

(b) Permitting the duplication or use of one's own accreditation certificate by another;

(c) Performing work for which accreditation has not been received; or

(d) Obtaining accreditation from a training provider that does not have approval to offer training for the particular discipline from either EPA or from a State that has a contractor accreditation plan at least as stringent as the EPA MAP. EPA may directly pursue deaccreditation actions without reliance on State deaccreditation or enforcement authority or actions. In addition to the above-listed situations, the Administrator may suspend or revoke the accreditation of persons who have been subject to a final order imposing a civil penalty or convicted under section 16 of TSCA, 15 U.S.C. 2615 or 2647, for violations of 40 CFR part 763, or section 113 of the Clean Air Act, 42 U.S.C. 7413, for violations of 40 CFR part 61, subpart M.

2. Any person who performs asbestos work requiring accreditation under section 206(a) of TSCA, 15 U.S.C. 2646(a), without such accreditation is in violation of TSCA. The following persons are not accredited for purposes of section 206(a) of TSCA:

(a) Any person who obtains accreditation through fraudulent representation of training or examination documents;

(b) Any person who obtains training documentation through fraudulent means;

(c) Any person who gains admission to and completes refresher training through fraudulent representation of initial or previous refresher training documentation; or

(d) Any person who obtains accreditation through fraudulent representation of accreditation requirements such as education, training, professional registration, or experience.

H. Reciprocity

EPA recommends that each State establish reciprocal arrangements with other States that have established accreditation programs that meet or exceed the requirements of the MAP. Such arrangements might address cooperation in licensing determinations, the review and approval of training programs and/or instructors, candidate testing and exam administration, curriculum development, policy formulation, compliance monitoring, and the exchange of information and data. The benefits to be derived from these arrangements include a potential cost-savings from the reduction of duplicative activity and the attainment of a more professional accredited workforce as States are able to refine and improve the effectiveness of their programs based upon the experience and methods of other States.

II. EPA Approval Process for State Accreditation Programs

A. States may seek approval for a single discipline or all disciplines as specified in the MAP. For example, a State that currently only requires worker accreditation may receive EPA approval for that discipline alone. EPA encourages States that currently do not have accreditation requirements for all disciplines required under section 206(b)(2) of TSCA, 15 U.S.C. 2646(b)(2), to seek EPA approval for those disciplines the State does accredit. As States establish accreditation requirements for the remaining disciplines, the requested information outlined below should be submitted to EPA as soon as possible. Any State that had an accreditation program approved by EPA under an earlier version of the MAP may follow the same procedures to obtain EPA approval of their accreditation program under this MAP.

B. Partial approval of a State Program for the accreditation of one or more disciplines does not mean that the State is in full compliance with TSCA where the deadline for that State to have adopted a State Plan no less stringent than the MAP has already passed. State Programs which are at least as stringent as the MAP for one or more of the accredited disciplines may, however, accredit persons in those disciplines only.

C. States seeking EPA approval or reapproval of accreditation programs shall submit the following information to the Regional Asbestos Coordinator at their EPA Regional office:

1. A copy of the legislation establishing or upgrading the State's accreditation program (if applicable).

2. A copy of the State's accreditation regulations or revised regulations.

3. A letter to the Regional Asbestos Coordinator that clearly indicates how the State meets the program requirements of this MAP. Addresses for each of the Regional Asbestos Coordinators are shown below:

EPA, Region I, (ATC-111) Asbestos Coordinator, JFK Federal Bldg., Boston, MA 02203-2211, (617) 565-3836.

EPA, Region II, (MS-500), Asbestos Coordinator, 2890 Woodbridge Ave., Edison, NJ 08837-3679, (908) 321-6671.

EPA, Region III, (3AT-33), Asbestos Coordinator, 841 Chestnut Bldg., Philadelphia, PA 19107, (215) 597-3160.

EPA, Region IV, Asbestos Coordinator, 345 Courtland St., N.E., Atlanta, GA 30365, (404) 347-5014.

EPA, Region V, (SP-14J), Asbestos Coordinator, 77 W. Jackson Blvd., Chicago, IL 60604-3590, (312) 886-6003.

EPA, Region VI, (6T-PT), Asbestos Coordinator, 1445 Ross Ave., Dallas, TX 75202-2744, (214) 655-7244.

EPA, Region VII, (ARTX/ASBS), Asbestos Coordinator, 726 Minnesota Ave., Kansas City, KS 66101, (913) 551-7020.

EPA, Region VIII, (8AT-TS), Asbestos Coordinator, 1 Denver Place, Suite 500, 999 - 18th St., Denver, CO 80202-2405, (303) 293-1442.

EPA, Region IX, (A-4-4), Asbestos Coordinator, 75 Hawthorne St., San Francisco, CA 94105, (415) 744-1128.

EPA, Region X, (AT-083), Asbestos Coordinator, 1200 Sixth Ave., Seattle, WA 98101, (206) 553-4762.

EPA maintains a listing of all those States that have applied for and received EPA approval for having accreditation requirements that are at least as stringent as the MAP for one or more disciplines. Any training courses approved by an EPA-approved State Program are considered to be EPA-approved for purposes of accreditation.

III. Approval of Training Courses

Individuals or groups wishing to sponsor training courses for disciplines required to be accredited under section 206(b)(1)(A) of TSCA, 15 U.S.C. 2646(b)(1)(A), may apply for approval from States that have accreditation program requirements that are at least as stringent as this MAP. For a course to receive approval, it must meet the requirements for the course as outlined in this MAP, and any other requirements imposed by the State from which approval is being sought. Courses that have been approved by a State with an accreditation program at least as stringent as this MAP are approved under section 206(a) of TSCA, 15 U.S.C. 2646(a), for that particular State, and also for any other State that does not have an accreditation program as stringent as this MAP.

A. Initial Training Course Approval

A training provider must submit the following minimum information to a State as part of its application for the approval of each training course:

1. The course provider's name, address, and telephone number.

2. A list of any other States that currently approve the training course.

3. The course curriculum.

4. A letter from the provider of the training course that clearly indicates how the course meets the MAP requirements for:

a. Length of training in days.

b. Amount and type of hands-on training.

c. Examination (length, format, and passing score).

d. Topics covered in the course.

5. A copy of all course materials (student manuals, instructor notebooks, handouts, etc.).

6. A detailed statement about the development of the examination used in the course.

7. Names and qualifications of all course instructors. Instructors must have academic and/or field experience in asbestos abatement.

8. A description of and an example of the numbered certificates issued to students who attend the course and pass the examination.

B. Refresher Training Course Approval

The following minimum information is required for approval of refresher training courses by States:

1. The length of training in half-days or days.

2. The topics covered in the course.

3. A copy of all course materials (student manuals, instructor notebooks, handouts, etc.).

4. The names and qualifications of all course instructors. Instructors must have academic and/or field experience in asbestos abatement.

5. A description of and an example of the numbered certificates issued to students who complete the refresher course and pass the examination, if required.

C. Withdrawal of Training Course Approval

States must establish criteria and procedures for suspending or withdrawing approval from accredited training programs. States should follow their own administrative procedures in pursuing actions for suspension or withdrawal of approval of training programs. At a minimum, the criteria shall include:

(1) Misrepresentation of the extent of a training course's approval by a State or EPA;

(2) Failure to submit required information or notifications in a timely manner;

(3) Failure to maintain requisite records;

(4) Falsification of accreditation records, instructor qualifications, or other accreditation information; or

(5) Failure to adhere to the training standards and requirements of the EPA MAP or State Accreditation Program, as appropriate.

In addition to the criteria listed above, EPA may also suspend or withdraw a training course's approval where an approved training course instructor, or other person with supervisory authority over the delivery of training has been found in violation of other asbestos regulations administered by EPA. An administrative or judicial finding of violation, or execution of a consent agreement and order under 40 CFR 22.18, constitutes evidence of a failure to comply with relevant statutes or regulations. States may wish to adopt this criterion modified to include their own asbestos statutes or regulations. EPA may also suspend or withdraw approval of training programs where a training provider has submitted false information as a part of the self-certification required under Unit V.B. of the revised MAP.

Training course providers shall permit representatives of EPA or the State which approved their training courses to attend, evaluate, and monitor any training course without charge. EPA or State compliance inspection staff are not required to give advance notice of their inspections. EPA may suspend or withdraw State or EPA approval of a training course based upon the criteria specified in this Unit III.C.

IV. EPA Procedures for Suspension or Revocation of Accreditation or Training Course Approval

A. If the Administrator decides to suspend or revoke the accreditation of any person or suspend or withdraw the approval of a training course, the Administrator will notify the affected entity of the following:

1. The grounds upon which the suspension, revocation, or withdrawal is based.

2. The time period during which the suspension, revocation, or withdrawal is effective, whether permanent or otherwise.

3. The conditions, if any, under which the affected entity may receive accreditation or approval in the future.

4. Any additional conditions which the Administrator may impose.

5. The opportunity to request a hearing prior to final Agency action to suspend or revoke accreditation or suspend or withdraw approval.

B. If a hearing is requested by the accredited person or training course provider pursuant to the preceding paragraph, the Administrator will:

1. Notify the affected entity of those assertions of law and fact upon which the action to suspend, revoke, or withdraw is based.

2. Provide the affected entity an opportunity to offer written statements of facts, explanations, comments, and arguments relevant to the proposed action.

3. Provide the affected entity such other procedural opportunities as the Administrator may deem appropriate to ensure a fair and impartial hearing.

4. Appoint an EPA attorney as Presiding Officer to conduct the hearing. No person shall serve as Presiding Officer if he or she has had any prior connection with the specific case.

C. The Presiding Officer appointed pursuant to the preceding paragraph shall:

1. Conduct a fair, orderly, and impartial hearing, without unnecessary delay.

2. Consider all relevant evidence, explanation, comment, and argument submitted pursuant to the preceding paragraph.

3. Promptly notify the affected entity of his or her decision and order. Such an order is a final Agency action.

D. If the Administrator determines that the public health, interest, or welfare warrants immediate action to suspend the accreditation of any person or the approval of any training course provider, the Administrator will:

1. Notify the affected entity of the grounds upon which the emergency suspension is based;

2. Notify the affected entity of the time period during which the emergency suspension is effective.

3. Notify the affected entity of the Administrator's intent to suspend or revoke accreditation or suspend or withdraw training course approval, as appropriate, in accordance with Unit IV.A. above. If such suspension, revocation, or withdrawal notice has not previously been issued, it will be issued at the same time the emergency suspension notice is issued.

E. Any notice, decision, or order issued by the Administrator under this section, and any documents filed by an accredited person or approved training course provider in a hearing under this section, shall be available to the public except as otherwise provided by section 14 of TSCA or by 40 CFR part 2. Any such hearing at which oral testimony is presented shall be open to the public, except that the Presiding Officer may exclude the public to the extent necessary to allow presentation of information which may be entitled to confidential treatment under section 14 of TSCA or 40 CFR part 2.

V. Implementation Schedule

The various requirements of this MAP become effective in accordance with the following schedules:

A. Requirements applicable to State Programs

1. Each State shall adopt an accreditation plan that is at least as stringent as this MAP within 180 days after the commencement of the first regular session of the legislature of the State that is convened on or after April 4, 1994.

2. If a State has adopted an accreditation plan at least as stringent as this MAP as of April 4, 1994, the State may continue to:

a. Conduct TSCA training pursuant to this MAP.

b. Approve training course providers to conduct training and to issue accreditation that satisfies the requirements for TSCA accreditation under this MAP.

c. Issue accreditation that satisfies the requirements for TSCA accreditation under this MAP.

3. A State that had complied with an earlier version of the MAP, but has not adopted an accreditation plan at least as stringent as this MAP by April 4, 1994, may:

a. Conduct TSCA training which remains in compliance with the requirements of Unit V.B. of this MAP. After such training has been self-certified in accordance with Unit V.B. of this MAP, the State may issue accreditation that satisfies the requirement for TSCA accreditation under this MAP.

b. Sustain its approval for any training course providers to conduct training and issue TSCA accreditation that the State had approved before April 4, 1994, and that remain in compliance with Unit V.B. of this MAP.

c. Issue accreditation pursuant to an earlier version of the MAP that provisionally satisfies the requirement for TSCA accreditation until October 4, 1994. Such a State may not approve new TSCA training course providers to conduct training or to issue TSCA accreditation that satisfies the requirements of this MAP until the State adopts an accreditation plan that is at least as stringent as this MAP.

4. A State that had complied with an earlier version of the MAP, but fails to adopt a plan as stringent as this MAP by the deadline established in Unit V.A.1., is subject to the following after that deadline date:

a. The State loses any status it may have held as an EPA-approved State for accreditation purposes under section 206 of TSCA, 15 U.S.C. 2646.

b. All training course providers approved by the State lose State approval to conduct training and issue accreditation that satisfies the requirements for TSCA accreditation under this MAP.

c. The State may not:

i. Conduct training for accreditation purposes under section 206 of TSCA, 15 U.S.C. 2646.

ii. Approve training course providers to conduct training or issue accreditation that satisfies the requirements for TSCA accreditation; or

iii. Issue accreditation that satisfies the requirement for TSCA accreditation. EPA will extend EPA-approval to any training course provider that loses State approval because the State does not comply with the deadline, so long as the provider is in compliance with Unit V.B. of this MAP, and the provider is approved by a State that had complied with an earlier version of the MAP as of the day before the State loses its EPA approval.

5. A State that does not have an accreditation program that satisfies the requirements for TSCA accreditation under either an earlier version of the MAP or this MAP, may not:

a. Conduct training for accreditation purposes under section 206 of TSCA, 15 U.S.C. 2646;

b. Approve training course providers to conduct training or issue accreditation that satisfies the requirements for TSCA accreditation; or

c. Issue accreditation that satisfies the requirement for TSCA accreditation.

B. Requirements applicable to Training Courses and Providers

As of October 4, 1994, an approved training provider must certify to EPA and to any State that has approved the provider for TSCA accreditation, that each of the provider's training courses complies with the requirements of this MAP. The written submission must document in specific detail the changes made to each training course in order to comply with the requirements of this MAP and clearly state that the provider is also in compliance with all other requirements of this MAP, including the new recordkeeping and certificate provisions. Each submission must include the following statement signed by an authorized representative of the training provider: "Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the training described in this submission complies with all applicable requirements of Title II of TSCA, 40 CFR part 763, Appendix C to Subpart E, as revised, and any other applicable Federal, state or local requirements." A consolidated self-certification submission from each training provider that addresses all of its approved training courses is permissible and encouraged.

The self-certification must be sent via registered mail, to EPA Headquarters at the following address: Attn. Self-Certification Program, Field Programs Branch, Chemical Management Division (7404), Office of

Pollution Prevention and Toxics, Environmental Protection Agency, 401 M St., SW., Washington, DC 20460. A duplicate copy of the complete submission must also be sent to any States from which approval had been obtained.

The timely receipt of a complete self–certification by EPA and all approving States shall have the effect of extending approval under this MAP to the training courses offered by the submitting provider. If a self–certification is not received by the approving government bodies on or before the due date, the affected training course is not approved under this MAP. Such training providers must then reapply for approval of these training courses pursuant to the procedures outlined in Unit III.

C. Requirements applicable to Accredited Persons.

Persons accredited by a State with an accreditation program no less stringent than an earlier version of the MAP or by an EPA–approved training provider as of April 3, 1994, are accredited in accordance with the requirements of this MAP, and are not required to retake initial training. They must continue to comply with the requirements for annual refresher training in Unit I.D. of the revised MAP.

D. Requirements applicable to Non–Accredited Persons.

In order to perform work requiring accreditation under TSCA Title II, persons who are not accredited by a State with an accreditation program no less stringent than an earlier version of the MAP or by an EPA–approved training provider as of April 3, 1994, must comply with the upgraded training requirements of this MAP by no later than October 4, 1994. Non–accredited persons may obtain initial accreditation on a provisional basis by successfully completing any of the training programs approved under an earlier version of the MAP, and thereby perform work during the first 6 months after this MAP takes effect. However, by October 4, 1994, these persons must have successfully completed an upgraded training program that fully complies with the requirements of this MAP in order to continue to perform work requiring accreditation under section 206 of TSCA, 15 U.S.C. 2646.

[52 FR 15876, Apr. 30, 1987; 59 FR 5236, Feb. 3, 1994; 60 FR 31917, June 19, 1995]

## § 341.17. Approval of Asbestos Cement Pipe Training and Asbestos Cement Pipe Course Providers for the Purpose of Employer Exemption from Registration Requirements.

(a) Scope and Application.

Any course provider (individual or business entity) desiring to provide asbestos cement pipe training for the purpose of employer exemption from requirements for "asbestos–related work" as provided by Section 1529(r) and Labor Code Section 6501.8(c) shall apply for and obtain approval pursuant to this section.

(b) Criteria for Asbestos Cement Pipe Course Approval.

(1) Initial course. The course shall consist of a minimum of four (4) hours training for workers and for supervisors, and shall include, but is not limited to the following topics:

(A) The physical characteristics and health hazards of asbestos.

(B) The types of asbestos cement pipe an employee may encounter in his or her specific work assignments.

(C) Safe practices and procedures for minimizing asbestos exposures from operations involving asbestos cement pipe.

(D) A review of general industry and construction safety orders relating to asbestos exposure.

(E) Hands–on instruction using pipe and the tools and equipment employees will use in the work place.

(2) Refresher course. Annual re–training must be provided in accordance with Section 1529(k)(9)(B). The annual refresher shall include at least two hours of review of the important elements covered in the initial course, any changes in federal and state asbestos regulations, and the latest developments in state of the art practices for work involving asbestos cement pipe.

(c) Applying for Course Approval.

Any individual or entity that desires to provide Division approved asbestos cement pipe training may apply to the Division at this address:

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
AC PIPE TRAINING APPROVAL
P.O. BOX 420603
SAN FRANCISCO, CA 94142

The following information shall be provided:

(1) The name and address of the individual or entity providing the training, the name and title of the person submitting the application with his or her signature and a statement certifying that the information and material submitted will be used in the course for which approval is being sought, and the name, title, and telephone number of the person whom the Division should contact regarding course approval matters.

(2) A written description of the training topics and hands–on practices that will be taught, and a copy of any training documents and visual training aids that will be used.

(d) Application Fee.

(1) The application fee is $200 for the initial course and $100 for the annual refresher course.

(2) Remittance for the application fee shall be made payable to Asbestos Training Approval Account.

(3) The fee is not refundable.

(e) Process of Application.

(1) Within 25 business days of receipt of an application, the Division shall notify the applicant in writing that the application is approved and issue a Division Course Approval Number, or that the application is deficient. The notice shall specify what additional information or documentation is necessary when the application is found to be deficient.

(2) Within 15 business days of receipt of the requested additional information or documentation, the Division shall notify the applicant in writing that the application is approved and issue a Division Approval Number, or that the application is still deficient and denied.

(3) An applicant whose application is denied may submit a new application with another application fee.

(f) Training Records.

(1) To maintain the course approval, the course provider shall maintain records which give the names of the trainees, the dates that the training was provided, the name(s) of the instructor(s) giving the training, and the Division issued Course Approval Number. This applies whether or not the course provider is also the employer.

(2) The course provider shall provide a copy of the training records to the Division when requested.

(3) Training records shall be maintained for a minimum of three years.

(g) Revocation of Course Approval.

(1) The Division may at any time, upon showing of good cause and after notice and an opportunity to be heard, revoke any course approval issued pursuant to this section.

(2) Notice shall be in writing and served upon the course provider at least 24 hours in advance of the hearing. Service shall be by personal service or certified mail to the course provider address as shown on the course approval application. The notice shall specify the reasons for the action taken by the Division in order that the course provider may prepare for the hearing.

(3) The hearing shall be held as soon as possible at the Division's headquarters office or at such other location as may be designated by the Division and shall be presided over by the Chief of the Division or authorized designee.

(4) At the hearing the Division shall establish good cause for the action taken by it. Good cause is deemed to exist if the Division establishes that the course provider did not provide the required training.

(5) The course provider receiving a revocation from the Division may appeal such revocation to the Director. The Director shall hold a hearing at such place designated by the Director or authorized designee for the convenience of the attending parties within two working days of the course provider's appeal. The course provider shall have the burden of establishing that the revocation is not justified. The hearing shall be presided over by the Director or authorized designee.

(6) Following the hearing, the Director shall issue a decision. The Director's decision shall be final except for any rehearing or judicial review

provided for by law. All requests for hearing shall be filed with the Director within 10 days from the date of the Director's decision.

NOTE: Authority cited: Sections 60.5, 6308 and 9021.9, Labor Code. Reference: Sections 6501(c) and 9021.9, Labor Code; and Section 1529, Title 8, California Code of Regulations.

HISTORY

1. New section filed 10–9–2003; operative 11–8–2003 (Register 2003, No. 41).
2. Change without regulatory effect amending subsection (g)(2) filed 12–22–2003 pursuant to section 100, title 1, California Code of Regulations (Register 2003, No. 52).

## Article 3. Reporting Work–Connected Injuries

### § 342. Reporting Work–Connected Fatalities and Serious Injuries.

(a) Every employer shall report immediately by telephone or telegraph to the nearest District Office of the Division of Occupational Safety and Health any serious injury or illness, or death, of an employee occurring in a place of employment or in connection with any employment.

Immediately means as soon as practically possible but not longer than 8 hours after the employer knows or with diligent inquiry would have known of the death or serious injury or illness. If the employer can demonstrate that exigent circumstances exist, the time frame for the report may be made no longer than 24 hours after the incident.

Serious injury or illness is defined in section 330(h), Title 8, California Administrative Code.

(b) Whenever a state, county, or local fire or police agency is called to an accident involving an employee covered by this part in which a serious injury, or illness, or death occurs, the nearest office of the Division of Occupational Safety and Health shall be notified by telephone immediately by the responding agency.

(c) When making such report, whether by telephone or telegraph, the reporting party shall include the following information, if available:

(1) Time and date of accident.

(2) Employer's name, address and telephone number.

(3) Name and job title, or badge number of person reporting the accident.

(4) Address of site of accident or event.

(5) Name of person to contact at site of accident.

(6) Name and address of injured employee(s).

(7) Nature of injury.

(8) Location where injured employee(s) was (were) moved to.

(9) List and identity of other law enforcement agencies present at the site of accident.

(10) Description of accident and whether the accident scene or instrumentality has been altered.

(d) The reporting in (a) and (b) above, is in addition to any other reports required by law and may be made by any person authorized by the employers, state, county, or local agencies to make such reports.

NOTE: Authority cited: Sections 60.5, 6308 and 6409.1, Labor Code. Reference: Sections 6302(h), 6307, 6308, 6313 and 6409, Labor Code.

HISTORY

1. New Article 3 (Section 342) filed 8–1–74 as an emergency; effective upon filing (Register 74, No. 31).
2. Certificate of Compliance filed 10–25–74 (Register 74, No. 43).
3. Amendment filed 2–28–79; effective thirtieth day thereafter (Register 79, No. 9).
4. Amendment of subsection (a), repealer of subsection (d) and relettering of subsection (e) to subsection (d) filed 12–5–84; effective thirtieth day thereafter (Register 84, No. 49).
5. Amendment of subsection (a) and new subsection (c)(10) filed 12–5–85; effective thirtieth day thereafter (Register 85, No. 49).
6. Amendment of subsection (a) filed 5–22–87; operative upon filing (Register 87, No. 22). (p. 8.24.6.2.1)
7. Amendment of subsection (a) filed 8–2–96; operative 9–1–96 (Register 96, No. 31).

## Article 4. Aerial Passenger Tramway Inspection Fee Schedule

### § 343. Aerial Passenger Tramway Inspection Fee Schedule.

(a) Inspection Fees. Pursuant to Section 7350 of the Labor Code the Division hereby fixes inspection fees as follows:

(1) A fee of $125.00 per hour or fraction thereof shall be charged for new inspections, major alterations, operational inspections, and consultations performed by a Division engineer.

(2) Fees shall be charged for actual inspection time. Actual inspection time begins from the time the Division engineer arrives, by appointment, in the area and continues until the engineer has completed the Division's report and is ready to leave the area.

(3) Permit of an existing installation shall be:

| | |
|---|---|
| Rope Toe | $ 125.00 per unit |
| Surface Lift | $ 250.00 per unit |
| Fixed Grip Lift | |
| —up to 1000 feet | $ 250.00 per unit |
| —up to 4000 feet | $ 375.00 per unit |
| —over 4000 feet | $ 625.00 per unit |
| Detachable Grip Lift | |
| Chair—up to 1000 feet | $ 750.00 per unit |
| Chair—up to 4000 feet | $1,000.00 per unit |
| Chair—over 4000 feet | $1,250.00 per unit |
| Gondola—up to 2000 feet | $ 750.00 per unit |
| Gondola—over 2000 feet | $1,250.00 per unit |
| Aerial Tramway | $1,500.00 per unit |

(b) No charge shall be made in any one permit year for more than two inspections except where safety orders have not been complied with and subsequent inspections are necessary. Then, an additional fee not to exceed $125.00 per hour or fraction thereof may, at the discretion of the Division, be charged.

(c) The Division will charge no fee for an inspection performed by a certified insurance inspector except a charge of $10.00 to cover the cost of processing the permit to operate.

(d) Aerial passenger tramways shall be inspected at least two times each year.

(e) At least one of the inspections required by subdivision (d) shall take place between November 15 of each year and March 15 of the succeeding year.

NOTE: Authority cited: Sections 60.5, 6308 and 7350, Labor Code. Reference: Sections 7344 and 7350, Labor Code.

HISTORY

1. Repealer of article 4 (sections 343–343.2) and new article 4 (section 343) filed 11–30–77; effective thirtieth day thereafter (Register 77, No. 49). For prior history, see Registers 76, No. 50 and 77, No. 18.
2. Repealer and new section filed 7–9–80; effective thirtieth day thereafter (Register 80, No. 28).
3. Amendment of subsections (a) and (b) filed 7–21–82; effective thirtieth day thereafter (Register 82, No. 30).
4. Amendment of subsections (a) and (b) filed 12–4–84; effective thirtieth day thereafter (Register 84, No. 49).
5. Amendment of subsections (a)(1) and (b) filed 12–29–88; operative 12–29–88 (Register 89, No. 2).
6. Amendment of subsections (a)(1) and (b) and new subsection (a)(3) filed 8–25–92; operative 9–24–92 (Register 92, No. 35).

## Article 5. Boiler and Tank Permit and Inspection Fee Schedule

### § 344. Shop and Resale Inspection Fees, Consultation and Audit Fees, Boilers and Tanks.

(a) A fee of $110.00 per hour, or part thereof, including travel time as set forth in part (1) of this subsection, based on quarter hour intervals, with a minimum of one–half hour, shall be charged for all shop, field erection and resale inspections of all tanks, boilers, parts of tanks and boilers, nuclear components and for consultation, surveys, audits, manual review and other activities required or related to the ASME code or oth-

er national standards concerning the design or construction of boilers or pressure vessels or for evaluating fabricator's plant facilities when these services are requested of the division by entities desiring these services.

(1) Travel time shall include the travel time from the Division's local office or the site of previous inspection, whichever is less, to the inspection site and travel time from the inspection site to the Division's local office or the site of a following inspection, whichever is less. The Division shall not charge more than one employer for the same period of travel time.

(b) Whenever a person using qualified engineers of the division to perform services stated in Section 344(a) fails to pay the fees required under this section within 60 days after notification, said person shall pay, in addition to the fees required under this section, a penalty fee equal to 100 percent of the fee. For the purpose of this section, the date of the invoice shall be considered the date of notification.

(c) Expenses.

(1) When the mileage from the division's office of the authorized inspector or authorized inspector–supervisor is in excess of 50 miles roundtrip to the inspection site a charge of 31 cents per mile will be added to the hourly rate charges.

(2) When overnight expenses are incurred by the authorized inspector or the authorized inspector–supervisor, the actual cost of meals and lodging, up to a maximum per day of $150.00 when lodging is obtained in the counties of Alameda, San Francisco, San Mateo and Santa Clara, and Central and Western Los Angeles, and up to a maximum per day of $124.00 when lodging is obtained in any other location in the state, will be added to the hourly rate charges.

(3) The division shall not charge more than one employer for the same amount of expenses incurred the same day except as follows: When more than one employer incurs these expenses the division may, at its discretion, equitably allocate the expenses among the parties inspected.

NOTE: Authority cited: Sections 60.5, 6308, 7721 and 7722, Labor Code. Reference: Sections 7721 and 7728, Labor Code.

HISTORY

1. New article 5 (sections 344, 344.1–344.4) filed 2–25–77; effective thirtieth day thereafter (Register 77, No. 9).
2. Amendment filed 11–30–77; effective thirtieth day thereafter (Register 77, No. 49).
3. Amendment of subsection (a) and new subsection (c) filed 2–28–79; effective thirtieth day thereafter (Register 79, No. 9).
4. Amendment filed 4–16–81; effective thirtieth day thereafter (Register 81, No. 16).
5. Amendment filed 3–24–82; effective upon filing pursuant to Government Code section 11346.2(d) (Register 82, No. 13).
6. Amendment filed 3–2–84 as an emergency; effective upon filing (Register 84, No. 11). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 6–30–84.
7. Order of Repeal of 3–2–84 emergency order filed 7–30–84 by OAL pursuant to Government Code section 11349.6 (Register 84, No. 31).
8. Amendment of subsection (a) and new subsection (d) filed 7–30–84 as an emergency; effective upon filing (Register 84, No. 31). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 11–27–84.
9. Certificate of Compliance transmitted to OAL 11–5–84 and filed 12–4–84 (Register 84, No. 49).
10. Amendment filed 8–16–88 as an emergency; operative 8–16–88 (Register 88, No. 34). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 12–14–88.
11. Certificate of Compliance transmitted to OAL 11–29–88 and filed 12–29–88 (Register 89, No. 2).
12. Amendment of subsection (a) and new subsection (a)(1) filed 9–20–90 as an emergency; operative 9–20–90 (Register 90, No. 44). A Certificate of Compliance must be transmitted to OAL by 1–18–91 or emergency language will be repealed by operation of law on the following day.
13. Amendment of subsection (a) filed 3–18–91; operative 3–18–91 (Register 91, No. 15).
14. Emergency order filed 9–20–90 repealed by operation of Government Code section 11346.1 (Register 91, No. 15).
15. Amendment of subsections (a) and (c)(2) filed 11–22–91 as an emergency; operative 11–22–91 (Register 92, No. 7). A Certificate of Compliance must be transmitted to OAL 3–23–91 or emergency language will be repealed by operation of law on the following day.
16. Amendment of subsections (a) and (c)(2) refiled 4–29–92 as an emergency; operative 4–29–92 (Register 92, No. 18). A Certificate of Compliance must be transmitted to OAL 8–28–92 or emergency language will be repealed by operation of law on the following day.
17. Certificate of Compliance as to 4–29–92 order transmitted to OAL 6–4–92 and filed 6–4–92 (Register 92, No. 23).
18. Amendment of subsections (a), (c)(1) and (c)(2) filed 6–19–2000 as an emergency; operative 6–19–2000 (Register 2000, No. 25). A Certificate of Compliance must be transmitted to OAL by 10–17–2000 or emergency language will be repealed by operation of law on the following day.
19. Certificate of Compliance as to 6–19–2000 order transmitted to OAL 8–28–2000 and filed 10–2–2000 (Register 2000, No. 40).

## § 344.1. Air Tank, Liquefied Petroleum Gas (L.P.G.), and Boiler Inspection Fees.

(a) A fee of $135.00 per hour or any part thereof, including travel time as set forth in part (1) of this subsection, based on quarter hour intervals with a minimum of one–half hour, shall be charged for field permit inspection of air tanks, L.P.G. tanks, and boilers by qualified safety engineers employed by the division. Such fees may also, in the division's discretion, be charged for subsequent consultation or inspections to determine if applicable safety orders have been complied with. No additional fees shall be assessed for follow–up inspections when Safety Order requirements have been complied with, and the division notified, within 15 days of the compliance date shown on the Preliminary Order.

(1) Travel time shall include the travel time from the Division's local office or the site of previous inspection, whichever is less, to the inspection site and travel time from the inspection site to the Division's local office or the site of a following inspection, whichever is less. The Division shall not charge more than one employer for the same period of travel time.

(b) Whenever a person owning or having the custody, management or operation of an air tank, L.P.G. tank, or boiler fails to pay the fees required under this section within 60 days after notification, said person shall pay, in addition to the fees required under this section, a penalty fee equal to 100 percent of the fee. For the purpose of this section, the date of the invoice shall be considered the date of notification.

NOTE: Authority cited: Sections 60.5, 6308 and 7721, Labor Code. Reference: Sections 7721 and 7728, Labor Code.

HISTORY

1. Amendment filed 11–30–77; effective thirtieth day thereafter (Register 77, No. 49).
2. Amendment filed 4–16–81; effective thirtieth day thereafter (Register 81, No. 16).
3. Amendment filed 3–24–82; effective upon filing pursuant to Government Code section 11346.2(d) (Register 82, No. 13).
4. Amendment filed 3–2–84 as an emergency; effective upon filing (Register 84, No. 11). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 6–30–84.
5. Order of Repeal of 3–2–84 emergency order filed 7–30–84 by OAL pursuant to Government Code section 11349.6 (Register 84, No. 31).
6. Amendment of subsection (a) filed 7–30–84 as an emergency; effective upon filing (Register 84, No. 31). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 11–27–84.

[The next page is 41.]

7. Certificate of Compliance transmitted to OAL 11-5-84 and filed 12-4-84 (Register 84, No. 49).
8. Amendment of subsection (a) filed 8-16-88 as an emergency; operative 8-16-88 (Register 88, No. 34). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 12-14-88.
9. Certificate of Compliance transmitted to OAL 11-29-88 and filed 12-29-88 (Register 89, No. 2).
10. Amendment of subsection (a) filed 9-20-90 as an emergency; operative 9-20-90 (Register 90, No. 44). A Certificate of Compliance must be transmitted to OAL by 1-18-91 or emergency language will be repealed by operation of law on the following day.
11. Amendment of subsection (a) filed 3-18-91; operative 3-18-91 (Register 91, No. 15).
12. Emergency order filed 9-20-90 repealed by operation of Government Code section 11346.1 (Register 91, No. 15).
13. Amendment of subsection (a) and adoption of subsection (a)(1) filed 11-22-91 as an emergency; operative 11-22-91 (Register 92, No. 7). A Certificate of Compliance must be transmitted to OAL 3-23-91 or emergency language will be repealed by operation of law on the following day.
14. Amendment of subsection (a) and adoption of subsection (a)(1) refiled 4-29-92 as an emergency; operative 4-29-92 (Register 92, No. 18). A Certificate of Compliance must be transmitted to OAL 8-28-92 or emergency language will be repealed by operation of law on the following day.
15. Certificate of Compliance as to 4-29-92 order transmitted to OAL 6-4-92 and filed 6-4-92 (Register 92, No. 23).
16. Amendment of subsection (a) filed 6-19-2000 as an emergency; operative 6-19-2000 (Register 2000, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-2000 or emergency language will be repealed by operation of law on the following day.
17. Certificate of Compliance as to 6-19-2000 order transmitted to OAL 8-28-2000 and filed 10-2-2000 (Register 2000, No. 40).

### § 344.2. Boiler, Tank and Resale Inspection Reports and Permits to Operate.

(a) Permits to operate and Resale Permits shall be issued by the Division, a qualified city or county, or an insurance company, or a corporation or company that inspects only boilers and tanks to be used by such company and not for resale. A qualified city or county or insurance company or a corporation or company that inspects only boilers and tanks to be used by such company and not for resale, is one that employs certified inspectors, as provided for in Section 779 of the Boiler and Fired Pressure Vessel Safety Orders.

(b) The Division shall issue a permit to operate upon receipt of the inspection reports required by Labor Code section 7654 and a fee of $15.00 to cover the costs of processing the Permit to Operate. If a Permit to Operate is issued on the Division's behalf by a certified inspector employed by an insurance company or by an employer who inspects boilers and tanks for the employer's own use and not for resale, the Division shall assess a fee of $15.00 to cover the cost of processing the Permit to Operate.

(c) Whenever a person owning or having the custody, management or operation of an air tank, L.P.G. tank, or boiler fails to pay the fees required under this section within 60 days after notification, said person shall pay, in addition to the fees required under this section, a penalty fee equal to 100 percent of the fee. For the purpose of this section, the date of the invoice shall be considered the date of notification.

NOTE: Authority cited: Sections 6308 and 7721, Labor Code. Reference: Sections 7721, 7650, 7654 and 7680, Labor Code.

HISTORY

1. Amendment filed 11-30-77; effective thirtieth day thereafter (Register 77, No. 49).
2. Amendment filed 4-16-81; effective thirtieth day thereafter (Register 81, No. 16).
3. Repealer and new section filed 3-24-82; effective upon filing pursuant to Government Code section 11346.2(d) (Register 82, No. 13).
4. Amendment filed 8-16-88 as an emergency; operative 8-16-88 (Register 88, No. 34). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 12-14-88.
5. Certificate of Compliance transmitted to OAL 11-29-88 and filed 12-29-88 (Register 89, No. 2).
6. Amendment of section heading, amendment of subsection (a) including repealer of second paragraph, and adoption of subsections (b) and (c) filed 11-22-91 as an emergency; operative 11-22-91 (Register 92, No. 7). A Certificate of Compliance must be transmitted to OAL 3-23-91 or emergency language will be repealed by operation of law on the following day.
7. Amendment of section heading, amendment of subsection (a) including repealer of second paragraph, and adoption of subsections (b) and (c) refiled 4-29-92 as an emergency; operative 4-29-92 (Register 92, No. 18). A Certificate of Compliance must be transmitted to OAL 8-28-92 or emergency language will be repealed by operation of law on the following day.
8. Certificate of Compliance as to 4-29-92 order transmitted to OAL 6-4-92 and filed 6-4-92 (Register 92, No. 23).
9. Amendment of subsections (a) and (b) and NOTE filed 8-2-96; operative 9-1-96 (Register 96, No. 31).
10. Amendment of subsections (a) and (b) filed 6-19-2000 as an emergency; operative 6-19-2000 (Register 2000, No. 25). A Certificate of Compliance must be transmitted to OAL by 10-17-2000 or emergency language will be repealed by operation of law on the following day.
11. Certificate of Compliance as to 6-19-2000 order, including further amendment of subsections (a)-(b), transmitted to OAL 8-28-2000 and filed 10-2-2000 (Register 2000, No. 40).

### § 344.3. Boiler Shop Inspection Fees.

NOTE: Authority cited: Sections 6308 and 7721, Labor Code. Reference: Section 7721, Labor Code.

HISTORY

1. Amendment filed 11-30-77; effective thirtieth day thereafter (Register 77, No. 49).
2. Amendment of subsection (a) and new subsection (c) filed 2-28-79; effective thirtieth day thereafter (Register 79, No. 9).
3. Amendment filed 4-16-81; effective thirtieth day thereafter (Register 81, No. 16).
4. Repealer filed 3-24-82; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 82, No. 13).

### § 344.4. Boiler Permit and Inspection Fees.

NOTE: Authority cited: Sections 6308 and 7721, Labor Code. Reference: Section 7721, Labor Code.

HISTORY

1. Amendment filed 11-30-77; effective thirtieth day thereafter (Register 77, No. 49).
2. Amendment filed 4-16-81; effective thirtieth day thereafter (Register 81, No. 16).
3. Repealer filed 3-24-82; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 82, No. 13).

## Article 6. Permanent Amusement Rides

### § 344.5. Application.

(a) This Article governs permanent amusement rides operated anywhere in the State of California.

(b) This Article does not apply to any of the following:

(1) Any playground operated by a school or local government if the playground is an incidental amenity and the operating entity is not primarily engaged in providing amusement, pleasure, thrills or excitement;

(2) Museums or other institutions principally devoted to the exhibition of products of agriculture, industry, education, science, religion or the arts;

(3) Skating rinks, arcades, laser or paint ball war games, indoor interactive arcade games, bowling alleys, miniature golf courses, mechanical bulls, inflatable rides, trampolines, ball crawls, exercise equipment, jet skis, paddle boats, air boats, helicopters, airplanes, parasails, hot air balloons (tethered or untethered,) theaters, amphitheaters, batting cages, stationary spring-mounted fixtures, rider-propelled merry-go-rounds, games, slide shows, live-animal rides, or live-animal shows; or

(4) Permanent amusement rides operated at a private event that is not open to the general public and not subject to a separate admission fee.

(5) Amusement rides that are not permanent amusement rides.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920-7932, Labor Code.

HISTORY

1. Renumbering of former article 6 to article 6.1 and new article 6 (sections 344.5-344.17) and section filed 10-30-2001; operative 10-30-2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

### § 344.6. Definitions.

For purposes of this Article, the following terms are defined as set forth herein:

(a) An "as-built document" is a document signed by a licensed engineer responsible for the construction of the permanent amusement ride stating that the ride has been constructed according to its final plans.

(b) A "California-licensed engineer" is a professional engineer with a certificate of registration issued by the California Board of Professional Engineers and Land Surveyors.

(c) A "licensed engineer" is a California-licensed engineer or a professional engineer with equivalent licensing by another state.

(d) A "major modification" is any change in the structure or operation of a permanent amusement ride that materially alters either the performance of the ride or any safety-related system of the ride. For the purposes of this definition, the disassembly and relocation of a ride is considered to be a major modification of the ride.

(e) A "new permanent amusement ride" is a permanent amusement ride that is placed in operation and opened to the public for the first time on or after November 5, 2001.

(f) An "operational inspection" is an inspection that consists of inspecting the operation of the permanent amusement ride, including its safety-related systems and procedures, and reviewing any other specific information that is substantially related to the safe operation of the ride.

(g) An "owner" or "operator" is a person or entity who owns or controls or has the duty to control the operation of a permanent amusement ride. The terms include the State and every political subdivision of the State, including every state agency, and each county, city, district, and all the public and quasi-public corporations and public agencies therein.

(h) A "permanent amusement ride" is a mechanical device, aquatic device, or combination of devices of a permanent nature that carries or conveys passengers along, around, or over a fixed or restricted course for the purpose of giving its passengers amusement, pleasure, thrills, or excitement. "Permanent amusement ride" includes bungee-jumping services, but does not include dry slides, playground equipment, coin-operated devices, conveyances that operate directly on the ground or on pavement or a surface directly on the ground, or aerial passenger tramways as defined by Labor Code section 7340(a). For the purposes of this definition, the phrase "of a permanent nature" means remaining at a single location for longer than 180 days.

(i) A "qualified safety inspector," or "QSI," is an individual certified by the Division pursuant to section 344.10. A QSI may be a safety inspector employed by the owner or operator of a permanent amusement ride, an employee or agent of the insurance underwriter or insurance broker of a permanent amusement ride, an employee or agent of the manufacturer of a permanent amusement ride, an employee of the Division of Occupational Safety and Health, or an independent consultant or contractor.

(j) "Safety-Related Systems and Procedures" are systems and procedures that materially affect safety or are designed or intended to increase the safety of a permanent amusement ride, including, but not limited to:

(1) Ride-control devices, including safety devices;

(2) Speed-limiting devices;

(3) Brakes;

(4) Passenger-carrying devices, including restraint systems;

(5) Mechanical systems that materially affect the safe operation of the ride;

(6) Ride electrical or electronic systems, including process-control equipment that are designed or intended to ensure safe operation of the ride;

(7) Daily pre-operational safety-related tests;

(8) Owner or operator safety-related maintenance, inspection and operational activities;

(9) Emergency procedures related to the operation of the ride, including, but not limited to, cessation of operation, evacuation procedures, ingress and egress controls, location of communication devices, and summoning of medical or emergency assistance; and

(10) Signage.

(k) A "structural inspection" is an inspection of a permanent amusement ride, which includes examination of the following structural attributes:

(1) Structural supports and foundations including wind and seismic integrity;

(2) Structural bracing; and

(3) Ride track elements, if any.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920-7932, Labor Code.

HISTORY

1. New section filed 10-30-2001; operative 10-30-2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

## § 344.7. Certificate of Compliance.

(a) On or before November 5, 2002, the owner or operator of a permanent amusement ride who does not elect to have a Division QSI perform the annual inspection required by section 344.8(c) shall submit to the Division a Certificate of Compliance together with the fee required by section 344.16(c). A new Certificate of Compliance shall be submitted annually and shall become due on each anniversary date of the first submission, unless the owner or operator elects in compliance with section 344.8(c)(2) to have a Division QSI conduct the annual inspection.

(b) The Certificate of Compliance shall include each of the following items:

(1) The legal name and address of the owner and his, her or its representative, if any, and the primary place of business of the owner;

(2) The legal name and address of the operator, if different from those of the owner;

(3) The name and a description of the permanent amusement ride, the address at which it is located, the name(s) of the manufacturer(s) of the ride, and if provided by the manufacturer(s), the serial number and model number of the permanent amusement ride; and

(4) A written declaration stating that, within the preceding 12-month period, the permanent amusement ride was inspected by a QSI, together with all of the individuals necessary to competently review the ride's safety-related systems and structural attributes, and that the permanent amusement ride is in conformance with the requirements of Subchapter 6.2 of Chapter 4 of Division 1 (starting at section 3195.1) of this Title. The written declaration shall be executed by a QSI under penalty of perjury.

NOTE: The requirement that the written declaration state that the permanent amusement ride is in conformance with the requirements of Subchapter 6.2 of Chapter 4 of Division 1 (starting at section 3195.1) of this Title shall not take effect until November 5, 2002, or 180 days after the date that Subchapter 6.2 has been adopted and takes effect, whichever is later.

(c) The owner or operator of multiple permanent amusement rides at one address may submit a single Certificate of Compliance that provides the information required in section 344.7(b) for all of the permanent amusement rides located at that address.

(d) Upon receipt of the Certificate of Compliance, the Division shall notify the owner or operator in writing within five (5) business days, that the Certificate of Compliance has been received and whether it meets the requirements of this Article. If a Certificate of Compliance is determined to be deficient, the Division's written notification shall enumerate the deficiencies and the information required to correct such deficiencies.

(e) All current written notifications issued by the Division pursuant to subsection (d) shall be available for public inspection during normal business hours at a readily accessible location at the site where the permanent amusement ride is located. Such documents may either be posted at the entrance to each permanent amusement ride, or at the election of the owner or operator, located at a readily accessible central location. If the owner or operator chooses not to maintain the documents at the entrance to a ride, a sign shall be posted at the entrance to the ride notifying the public of the location where the documents can be viewed.

(f) No person shall operate a permanent amusement ride unless the permanent amusement ride complies with all applicable requirements of this Article and Subchapter 6.2 of Chapter 4 of Division 1 (starting at section 3195.1) of this Title.

Note: The requirement that the amusement ride comply with all applicable requirements of Subchapter 2 shall not take effect unless and until Subchapter 2 is adopted and takes effect.

(g) Starting on November 5, 2002, an owner or operator who has not elected in compliance with sections 344.8(c)(1) and (c)(2) to have the Division conduct the annual inspection required by section 344.8(c) shall not operate an amusement ride with passengers unless a valid Certificate of Compliance applicable to the ride has been submitted to, and accepted by, the Division as required by section 344.7.

EXCEPTION NO 1: If the Division fails to notify the owner or operator within 5 business days of receipt of a Certificate of Compliance that the Certificate has been received and whether it meets the requirements of this Article as required by subsection (d), the owner or operator may continue to operate the ride, unless and until the Division notifies the owner or operator that the Certificate is deficient.

EXCEPTION NO. 2: If a tardy request for a Division–conducted annual inspection is made, and the Division can accommodate the request, the ride may be operated after the inspection has been initiated and the Division informs the owner or operator that the ride may be operated.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

## § 344.8. Inspections.

(a) Initial Division Inspection of New Permanent Amusement Rides. A Division QSI shall conduct an operational inspection of each new permanent amusement ride before the ride is placed in operation and opened to the public to evaluate the safety of the ride.

(1) The owner or operator of the ride shall notify the Division, in writing, at least 30 days prior to opening the ride to the public.

(2) The notification shall state the location of the ride, the date the owner or operator intends to commence public operation, and the earliest date the ride will be ready for inspection by the Division.

(3) If the Division receives notification in compliance with section 344.8(a)(1), the Division shall initiate the inspection before the date indicated by the operator for commencement of public operation of the ride, and shall make a reasonable effort to complete the inspection prior to that date. If the Division is unable to complete the inspection within 30 days of receiving notification by the owner or operator, and the lack of completion of the inspection is not attributable to the action or inaction of the owner or operator, the ride may by opened to the public until the inspection is completed, unless there is a substantial reason to question the safety of the ride.

(4) The ride owner or operator shall ensure that a representative is present to operate the ride and perform the tests requested by the Division QSI as necessary to complete the operational inspection.

(5) In conjunction with the inspection, the owner or operator of the ride shall make available to the Division each of the following:

(A) A written certification from a licensed engineer that the ride meets the all applicable design requirements set forth in Subchapter 6.2 of Chapter 4 of Division 1 (starting at section 3195.1) of this Title.

NOTE: This requirement shall not take effect unless and until Subchapter 6.2 has been adopted and takes effect.

(B) An as–built document.

(C) A copy of the certificate of occupancy issued by the local building authority, if the local building authority has such a requirement.

(b) Division Inspection of Major Modifications. After any major modification has been made to a permanent amusement ride, a Division QSI shall conduct an operational inspection of the ride before the ride is reopened to the public.

(1) The owner or operator of the ride shall provide the Division with at least 30 days advance written notice of the anticipated date of reopening the ride to the public following the major modification.

(2) The advance written notice shall state the date the owner or operator intends to resume public operation, and the earliest date the ride will be ready for Division inspection.

(3) If the Division receives notification in compliance with section 344.8(b)(1), the Division shall initiate the inspection before the date indicated by the operator for reopening of the ride to the public, and shall make a reasonable effort to complete the inspection prior to that date. If the Division is unable to complete the inspection within 30 days of receiving notification by the owner or operator, and the lack of completion of the inspection is not attributable to the action or inaction of the owner or operator, the ride may by opened to the public until the inspection is completed, unless there is a substantial reason to question the safety of the ride.

(4) In conjunction with the Division's major modification inspection, the owner or operator of a permanent amusement ride shall make available to the Division each of the following:

(A) A written certification from a licensed engineer that the ride as modified meets all applicable design requirements set forth in Subchapter 6.2 of Chapter 4 of Division 1 (starting at section 3195.1) of this Title.

NOTE: This requirement shall not take effect unless and until Subchapter 6.2 has been adopted and takes effect.

(B) An as–built document.

(C) A copy of the certificate of occupancy issued by the local building authority, if the local building authority has such a requirement.

(c) Annual QSI Inspection. An annual QSI inspection shall be conducted of each permanent amusement ride at least once each year by either a QSI selected by the owner/operator or by a Division QSI, at the election of the owner or operator.

(1) If the owner or operator elects to have a Division QSI conduct the Annual QSI Inspection, the owner or operator shall submit a written request that the Division conduct the inspection. The request shall be submitted to the Division no later than 60 days prior to the date the Certificate of Compliance becomes due.

(2) Whenever an owner or operator elects to have a Division QSI conduct an annual inspection, the date of completion of the Division's inspection shall become the anniversary date by which the owner or operator's Certificate of Compliance becomes due the following year if a request for a Division–conducted QSI inspection is not made pursuant to subsection (c)(1).

(3) The annual QSI inspection shall include both a structural inspection and an operational inspection.

(4) A permanent amusement ride found on inspection to be unsafe shall be closed to the public and shall not be reopened to the public until all necessary repairs and modifications have been completed and certified as completed by a QSI.

(d) Annual Division Records Audit and Inspection.

(1) Starting on December 4, 2002, a Division QSI shall annually audit the records pertaining to each permanent amusement ride, including, but not limited to, records of accidents, records of employee training, and records of maintenance, repair, and inspection of the ride.

(2) A Division QSI shall conduct an operational inspection in conjunction with the annual records audit. The operational inspection shall be conducted in two phases, as follows:

(A) One phase shall consist of an unannounced inspection conducted during business hours to observe the normal operation of the ride with passengers.

(B) The other phase, consisting of all other aspects of the operational inspection, shall be pre–announced and conducted without passengers present.

(e) Exception to subsections (a), (b), (c), and (d): The following provisions shall apply to each permanent amusement ride that is located within a county or other political subdivision of the State that, as of April 1, 1998, has adopted the provisions of Chapter 66 (commencing with section 6601.1) of the 1994 Uniform Building Code providing for the routine inspection of permanent amusement rides by counties and other political subdivisions of the State, provided that the Division determines that these inspections meet or exceed the inspection standards set forth in this Article:

(1) The ride shall not be subject to the inspection or records audit requirements of subsections (a), (b), or (d), to the extent that the county or other political subdivision provides inspections according to the same criteria as those specified in each of these subsections.

(2) The ride shall be subject to the requirements of subsection (c). However, the employer may elect to have the county or other political

subdivision conduct the Annual QSI Inspection on the same basis that it may elect to have the Division conduct the Annual QSI Inspection, provided that the county or other political subdivision provides inspections according to the same criteria as those specified in subsection (c) and the owner or operator complies with all applicable deadlines for making written requests.

(f) Discretionary Division Inspections. A Division QSI may conduct an inspection to determine the safety of a permanent amusement ride, in a manner consistent with any reasonable safety concern raised by the information available to the Division, whenever the Division:

(1) Receives notification, or otherwise learns, of an accident involving the permanent amusement ride required to be reported pursuant to section 344.15;

(2) Determines that a fraudulent Certificate of Compliance for the permanent amusement ride was submitted;

(3) Determines, based on factors such as ride cycles or number of riders, that a permanent amusement ride has a disproportionately–high incidence of accidents when compared to other rides of similar type and design in the State of California; or

(4) Receives a complaint or otherwise becomes aware of information, when the complaint or information reasonably appears to be reliable and credible, that one of the safety–related systems or structural components of a ride is unsafe, or that a particular practice associated with a ride is unsafe.

(g) The Division shall cause the least possible disruption to the normal operation of a permanent amusement ride consistent with the effective completion of an inspection.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

### § 344.9. Order Prohibiting Operation.

(a) If, after inspection by a Division QSI, the Division determines that a permanent amusement ride, or any part thereof, presents an imminent hazard or is otherwise unsafe for patrons, the Division may prohibit the operation of the ride, or any affected part thereof. The Division shall frame the scope of the prohibition with the narrowest scope reasonably necessary to ensure the protection of the public.

EXCEPTION NO. 1: The Division shall not issue an Order Prohibiting Operation if the hazardous or unsafe condition can be corrected immediately and the operator, after being informed of the condition by the Division, immediately abates the hazardous or unsafe condition.

EXCEPTION NO. 2: If an unsafe condition does not constitute an imminent hazard to patrons, the Division shall, prior to issuing an Order Prohibiting Operation, engage in an informal consultation with the owner or operator in an effort to resolve any factual questions or gather information relevant to determining whether the public operation of the amusement ride should be prohibited.

(b) The Division shall notify the owner or operator in writing of the grounds for prohibition of operation and of the conditions in need of correction at the time it issues the Order Prohibiting Operation.

(c) Operation of the permanent amusement ride shall not be reopened to the public until the conditions cited in the Order Prohibiting Operation have been corrected and approved by an authorized Division representative.

(d) The owner or operator may appeal any Order Prohibiting Operation. The Division shall conduct appeal proceedings in accordance with Labor Code Section 6327.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

### § 344.10. Certification of a QSI.

(a) No person shall perform the services of a QSI for permanent amusement rides unless he or she possesses a current, valid QSI Certificate issued by the Division.

(b) An application for certification as a QSI shall be made to the Division on a form prescribed by the Division, which shall require the applicant to provide information limited to his or her name, social security number, mailing address, daytime telephone number, two passport photographs, and information required to satisfy subsection (c).

(1) All statements on the application shall be made under penalty of perjury.

(2) Within 20 business days of receipt of an application for certification as a QSI, the division shall notify the applicant in writing that the application is complete and accepted for filing or incomplete and what additional evidence, documentation, or information is necessary to complete the application. An application shall be considered to be complete once all evidence, documentation, and information required by subsection (c)(1) or (c)(2) have been submitted.

(3) Within 20 business days of receipt of a completed application, the Division shall notify the applicant in writing of its decision to approve or disapprove the application. If the application is made pursuant to subsection (c)(2), the Division shall, upon approval of the application, allow the applicant to sit for an examination pursuant to subsection (c)(2)(D).

(4) If the applicant has qualified for certification under subsection (c)(1), the Division shall issue a QSI Certificate to the applicant upon approval of the application. If the applicant has qualified for certification under subsection (c)(2), the Division shall issue a QSI Certificate to the applicant upon completion of the QSI Examination with a score of at least 80% as required by subsection (c)(2)(D).

(c) To be eligible for certification as a QSI, an applicant shall qualify as either a licensed engineer or as a non–engineer.

(1) To qualify as a licensed engineer, the applicant shall do all of the following:

(A) Provide satisfactory evidence that the applicant is a licensed engineer and has completed at least two years of experience in the amusement ride field, consisting of at least one year of actual inspection of amusement rides for a manufacturer, government agency, amusement park, carnival or insurance underwriter, and an additional year of practicing any combination of amusement ride inspection, design, fabrication, installation, maintenance, testing, repair, or operation.

(B) Provide any other information reasonably requested by the Division.

(2) To qualify as a non–engineer, the applicant shall do all of the following:

(A) Provide satisfactory evidence of completing a minimum of five years of experience in the amusement ride field, at least two years of which consisted of actual inspection of amusement rides for a manufacturer, government agency, amusement park, carnival or insurance underwriter. The remaining experience may consist of any combination of amusement ride inspection, design, fabrication, installation, maintenance, testing, repair, or operation.

(B) Provide any other information reasonably requested by the Division.

(C) Produce a valid certificate from a QSI Training Program approved by the Division pursuant to section 344.11, evidencing the applicant's successful completion of 80–hour QSI certification training. For the purposes of this subsection, the training must have been completed within the past five years as of the time the application is made, but must not have been received earlier than January 1, 1999.

NOTE: A certificate of completion from an approved QSI Training Program which is based on training received prior to the date this Article takes effect is acceptable if the course work has been retroactively approved pursuant to section 344.11(f).

EXCEPTION: An applicant may apply up to 40 hours of successfully completed nondestructive testing (NDT) training toward completion of the requirement for 80 hours of QSI certification training from an approved QSI Training Program. For the purposes of this exception, an acceptable NDT training course is one offered by an instructor certified by the American Society for Nondestructive Testing, Inc. ("ASNT") Nondestructive Training Level III, and covering the test method body of knowledge as described in the ASNT Recommended Practice No. SNT–TC–1A, 1996. The applicant shall provide all documentation or evidence reasonably necessary to demonstrate that the NDT training sought to be applied toward the 80–hour requirement meets these criteria. Other NDT courses shall be considered to be acceptable if the QSI applicant can demonstrate that the course instruc-

tor and content are equally effective in imparting skills and subject matter to attendees that are necessary for competent inspection of permanent amusement rides. No course shall be considered acceptable if the Division reasonably determines that the subject matter is insufficiently related to the inspection of permanent amusement rides to qualify as substitutable NDT training, or if the Division reasonably determines that the manner of instruction is insufficiently managed or monitored to be considered bona fide training.

(D) Achieve a score of at least 80% on a written examination (QSI Examination) pertaining to the subjects addressed in this Article and Subchapter 6.2 of Chapter 4 of Division 1 (starting at section 3195.1) of this Title and subject matter applicable to the safe operation of permanent amusement rides. The examination shall be given during the Division's normal business hours in Sacramento or Anaheim at a time convenient to the applicant.

NOTE: The examination shall not require knowledge of any requirements in Subchapter 6.2 unless and until Subchapter 6.2 has been adopted and takes effect.

(d) A QSI Certificate shall be valid for a period of two years from the date of issuance.

(e) Application for renewal of a QSI Certificate shall be made to the Division on a form prescribed by the Division, which shall require the certificate holder to provide his or her name and daytime telephone number.

(1) All statements on the renewal application shall be made under penalty of perjury.

(2) Each application shall be accompanied by the application fee fixed by section 344.16(b).

(3) The applicant shall provide evidence of having completed, during the previous biennial renewal cycle, at least 30 hours of training from the continuing education component of a QSI Training Program approved pursuant to section 344.11(c). This training shall include inservice industry or manufacturer updates and seminars.

(4) The applicant shall provide any additional information reasonably requested by the Division.

(5) Within 10 business days of receipt of an application for renewal of a QSI certificate, the Division shall notify the applicant in writing either that the application is complete and accepted for filing or deficient and what specific information is required to complete the application. Within 10 business days of receipt of a completed application for certification as a QSI or an application for renewal of a QSI certificate, the Division shall notify the applicant of its decision to approve or disapprove the application.

(f) The Division shall determine whether the applicant meets the criteria necessary for certification or renewal of certification pursuant to this Article and Part 8.1 of Division 5 of the Labor Code, and shall approve or disapprove the application for certification or renewal of certification accordingly.

(g) The Division may revoke or suspend the certification of a QSI, upon determining that the holder:

(1) Has submitted a fraudulent inspection report to the Division or to the owner or operator of a permanent amusement ride; or

(2) Has not performed competently as a QSI.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New article 6 (section 344.10) filed 11–30–77; effective thirtieth day thereafter (Register 77, No. 49).
2. Repealer and new section filed 7–9–80; effective thirtieth day thereafter (Register 80, No. 28).
3. Amendment filed 12–4–84; effective thirtieth day thereafter (Register 84, No. 49).
4. Amendment of subsection (a) filed 12–29–88; operative 12–29–88 (Register 89, No. 2).
5. Amendment of subsection (a)(1) filed 8–25–92; operative 9–24–92 (Register 92, No. 35).
6. Renumbering of former article 6 to new article 6.1 and renumbering of former section 344.10 to new section 344.18 filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

## § 344.11. Approval of QSI Training Programs.

(a) A school or training provider may apply to the Division for approval of a QSI Training Program (referred to in this section as "Program") by submitting the following information:

(1) The name(s) of the training courses offered by the Program.

(2) The name, title, business address, and phone number of the person whom the Division will contact regarding Program approval matters, a statement certifying that the information provided with the application is true and correct to the best of the applicant's knowledge, and the name title, business address, and phone number of the person signing the declaration if different from the person who will be the Division's contact.

(3) Materials describing the subject matter and hours of instruction of each course required by the Program, with an explanation as to which courses are to apply toward:

(A) The QSI certification training requirements of section 344.10(c)(2)(C);

(B) QSI certification training requirements based on completion of up to 40 hours of NDT training as allowed by the exception to section 344.10(c)(2)(C); and

(C) The QSI continuing education requirements of section 344.10(e)(3).

NOTE: A school or training provider may offer any or all of the above three options.

(4) The name(s) and qualifications of the instructor(s) of the Program.

(5) Any other information reasonably requested by the Division.

(b) Processing of Application.

(1) Within 20 business days of receipt of an application for approval, the Division shall inform the applicant in writing whether the submitted application information is complete or additional information needs to be submitted.

(2) Within 45 business days of receipt of a completed application for approval, the Division shall inform the applicant that the Program is approved or inform the applicant that the application for approval is denied, specifying the reasons for denial.

(c) Criteria for Approval. Upon receiving complete application materials from the provider, the Division shall determine whether the applicant meets the criteria necessary for approval pursuant to this Article and the Permanent Amusement Ride Safety Inspection Program, Labor Code section 7920 et seq., and shall approve or disapprove the application accordingly. The approval shall specify each component of QSI Training, as described in section 344.11(a)(3), to which the approval applies. To qualify for approval, the applicant shall demonstrate that its Program will meet all of the following requirements:

(1) Ensure that the instructor for each course required by the Program is experienced in the subject matter of the course.

(2) Ensure that the course content is current and will be kept current.

(3) Require Program participants to attend each course required by the Program for its full duration so that the applicable requirements for hours of instruction as described by sections 344.10(c)(2)(C) and 344.10(e)(3) are met.

(4) Utilize a reliable testing method to determine whether the course participants have learned the subject matter presented by the course.

(5) Provide a certificate of completion to all successful participants at the completion of the Program.

(6) Ensure that the courses required by the Program provide classroom training related to the inspection, design, maintenance, testing, and operation of permanent amusement rides and applicable provisions of Title 8 of this Code, ensure that the subject matter of the training is current and will be kept current, and ensure that the overall content of courses required by the Program meets the intent of the Permanent Amusement Ride Safety Inspection Program, Labor Code section 7920, et seq., that QSIs receive training allowing them to perform competent and effective inspections of permanent amusement rides for the purpose of ensuring the safety of patrons.

(d) To maintain QSI Training Program approval, a school or training provider shall promptly notify the Division in writing each time the provider makes a substantive change to any of the information required pursuant to subsection (a).

(e) The Division may suspend or revoke the approval of a QSI Training Program upon determining that the Program has substantially failed to comply with approval requirements.

(f) The Division may grant retroactive approval of training provided after January 1, 1999 but before this Article takes effect, if the provider demonstrates that the training met the QSI Training Program approval criteria of this section.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

### § 344.12. Suspension and Revocation Procedures.

All suspension and revocation proceedings conducted by the Division shall be initiated by the provision of written notice of the Division's intent to conduct a hearing to determine whether a certification or approval will be suspended or revoked.

(a) The written notice shall be served at least 48 hours in advance of the scheduled hearing date.

(b) Service shall be by personal service or certified mail to the address shown on the application for certification or approval, or to any other address known to the Division and reasonably believed to be the current address of the certificate holder or course provider.

(c) The written notice shall specify the time, date, and location of the hearing, and the reasons for the action proposed by the Division.

(d) At the hearing the Division shall have the burden of establishing good cause for the action taken by it. Good cause shall be deemed to exist if the Division establishes that the holder of a certification has substantially failed to comply with the requirements for certification pursuant to section 344.10(g), or that the holder of an approval has substantially failed to comply with the requirements of approval pursuant to section 344.11(e).

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

### § 344.13. Appeals to the Director.

(a) The following may be appealed to the Director:

(1) Suspensions and revocations by the Division.

(2) Denials of applications for QSI certification or QSI Training Program approval.

(3) Any final decision after hearing by the Division to uphold an Order Prohibiting Operation.

(b) All appeals to the Director shall be in writing and shall be served within 5 business days of receipt of the notification of the Division's decision resulting in a denial, suspension, or revocation.

(c) The Director or authorized representative shall schedule a hearing to be held within 5 business days of receipt of an appeal. At the hearing, the appellant shall have the burden of establishing that the Division's decision is in error.

(d) Within 3 business days of completing the hearing, the Director shall issue a decision. The Director's decision shall be final except for any rehearing or judicial review provided for by law.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

### § 344.14. Insurance Requirements.

A person or entity may operate a permanent amusement ride only if, at the time of operation, he, she, or it:

(a) Has obtained a valid insurance policy in an amount not less than one million dollars ($1,000,000) per occurrence, and:

(1) Has submitted to the Division a copy of the policy;

(2) Has clearly identified in the policy the permanent amusement rides included and excluded; and

(3) Does not operate permanent amusement rides for which coverage is not provided; or

(b) Has obtained a bond in an amount not less than one million dollars ($1,000,000), except that the aggregate liability of the surety under that bond shall not exceed the face amount of the bond. A copy of the bond shall be submitted to the Division; or

(c) Qualifies as self–insured. Qualification as self–insured shall be demonstrated by providing a letter to the Division attesting that the owner has total assets of at least ten million dollars ($10,000,000), and that the owner's total assets exceed the owner's total liabilities by either a minimum of two million dollars or a ratio of at least ten to one. All statements in the attestation letter to the Division shall be made under penalty of perjury.

EXCEPTION: State and local governmental entities shall be deemed to qualify as self–insured.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

### § 344.15. Accident Response and Notification.

(a) Reporting of Accidents.

Each operator of a permanent amusement ride shall report or cause to be reported to the Division's Anaheim or Sacramento Amusement Ride Section Office immediately by telephone each known accident where maintenance, operation, or use of the permanent amusement ride results in a death or serious injury to any person unless the injury does not require medical service other than ordinary first aid.

(b) Preservation of Accident Scene.

(1) If a death or serious injury results from the failure, malfunction, or operation of a permanent amusement ride, the equipment or conditions that caused the accident shall be preserved for the purpose of an investigation by the division.

(2) Upon receiving a report of an accident from an owner or operator, the Division shall make a determination as to whether preservation is necessary and inform the owner or operator of its determination.

(A) If the Division determines that preservation is necessary, the Division shall make a reasonable effort to initiate the inspection within 24 hours of receipt of the report from the owner or operator.

(B) Upon initiating the inspection, the Division shall provide the owner or operator with an instruction as to how long the equipment or conditions shall continue to be preserved.

(c) Notification of the Division by Emergency Responders.

Whenever a state, county, or local fire or police agency is called to an accident involving a permanent amusement ride covered by this Article where the death of a patron or a patron injury requiring medical service other than first aid has occurred, the Anaheim or Sacramento Amusement Ride Section Office of the Division shall be notified by telephone immediately by the responding agency.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

### § 344.16. Fee Schedule.

(a) The application fee for a QSI Certificate shall be five hundred dollars ($500.00).

(b) The fee for the biennial renewal of a QSI Certificate shall be one hundred and twenty five dollars ($125.00).

(c) The fee for review of Certificates of Compliance and provision of related notifications shall be two hundred and fifty dollars ($250.00).

(d) A fee of one hundred and twenty-five dollars ($125.00) per hour, or fraction thereof, shall be charged for all work performed in connection with audits, inspections and investigations conducted pursuant to section 344.8.

NOTE: Authority cited: Sections 60.5, 7923, 7928 and 7929, Labor Code. Reference: Sections 7920–7932, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

### § 344.17. Confidentiality.

The Division shall maintain the confidentiality of all documentation received pursuant to this Article to the extent that such documentation is protected by Labor Code Section 6322 or any other applicable provision of law.

NOTE: Authority cited: Sections 60.5, 7923 and 7928, Labor Code. Reference: Sections 6322 and 7920–7928, Labor Code.

HISTORY

1. New section filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

## Article 6.1. Amusement Ride Inspection Fee Schedule

### § 344.18. Amusement Ride Fee Schedule.

(a) Inspection Fees.

(1) A fee of $125.00 per hour or fraction thereof shall be charged for all inspections, reinspections, and accident investigations pertaining to amusement rides. A minimum fee of $125.00 will be charged per amusement ride.

(2) Fees shall be charged for actual inspection time. Actual inspection time begins from the time the Division engineer arrives, generally by appointment, in the area and continues until the engineer has completed the Division's report and is ready to leave the area.

(b) The Division will charge no fee for an inspection performed by a certified insurance inspector except a charge of $10.00 to cover the cost of processing the permit to operate.

NOTE: Authority cited: Sections 60.5, 6308 and 7904, Labor Code. Reference: Section 7904, Labor Code.

HISTORY

1. Renumbering of former article 6 to new article 6.1 and renumbering of former section 344.10 to new section 344.18 filed 10–30–2001; operative 10–30–2001 pursuant to Government Code section 11343.4 (Register 2001, No. 44).

## Article 7. Blaster's License

### § 344.20. Blaster's License—Application and Examination.

(a) Every person requesting a Blaster's License shall submit a completed application form to the Division.

(b) The Division shall evaluate every applicant for a Blaster's License. This evaluation will be conducted of the person's training and experience as shown on the application.

(c) In order to obtain a Blaster's License, the applicant shall pass a written or an oral qualifying examination given at such times and places as determined by the Division. The examination shall include questions related to the license classification requested. Field tests may also be required as deemed necessary to determine the candidate's qualifications to perform the duties of a blaster.

(d) License classification.

| *Class* | *Category* | *Description* |
|---|---|---|
| A | Unlimited | All types of blasting. |
| B | General Above Ground | All phases of blasting operations in quarries, open pit mines, and above ground construction. |
| C | General Underground | All phases of blasting operations in under ground mines, shafts, tunnels, and drifts. |
| D | Demolition | All phases of demolition. |
| E | Limited | Specific blasting operations indicated on the License. |

(e) The Blaster's License may be endorsed by any limitation or classification the Division may determine.

(f) The Blaster's License is not transferable.

NOTE: Authority cited: Sections 6308, 7314, 7350, 7720–7724, 7728, 7904 and 7991, Labor Code. Reference: Sections 7314, 7350, 7720–7724, 7728, 7904 and 7991, Labor Code.

HISTORY

1. New Article 7 (Sections 344.20–344.22) filed 11–30–77; effective thirtieth day thereafter (Register 77, No. 49).

### § 344.21. Expiration and Renewal.

(a) Each Blaster's License issued under this Article shall be valid for a period of five years with renewal privileges.

(b) Application for, and granting of a renewal, shall be administered in the same manner as an original Blaster's License. The Blaster's License examination will be required each five years.

### § 344.22. Suspension or Revocation—Blaster's License.

(a) The Division may suspend or revoke a blaster's license when in the opinion of the Division;

(1) There is a question or doubt as to the competency of the blaster, or

(2) The blaster has not complied with requirements, safety orders, or rules of the Division.

(b) The blaster shall be given notice and a hearing before suspending or revoking a blaster's license.

(c) In the event of suspension or revocation of a blaster's license, the person may not apply for a new license for a period of 6 months and the application shall be handled in the same manner as an original blaster's license.

NOTE: Authority cited: Sections 60.5, 6308 and 7991, Labor Code. Reference: Sections 6308 and 7995, Labor Code.

HISTORY

1. New section filed 12–5–85; effective thirtieth day thereafter (Register 85, No. 49).

## Article 8. Elevator Inspection Fee Schedule

### § 344.30. Conveyance Inspection Program Fees.

Pursuant to the provisions of Section 7314 of the Labor Code, the Division has fixed a schedule of inspection fees as follows:

(a) Reinspection (periodic inspection) and witnessing of periodic tests of an existing installation shall be:

| | |
|---|---|
| (1) Hand dumbwaiters | $ 70.00 per unit |
| (2) Power dumbwaiters and material lifts | $ 105.00 per unit |
| (3) Hand elevators | $ 70.00 per unit |
| (4) Material lifts with automatic transfer devices | $ 140.00 per unit |
| (5) Power sidewalk elevators | $ 140.00 per unit |
| (6) Hand-powered man platforms | $ 140.00 per unit |
| (7) Escalators and moving walks | $ 280.00 per unit |
| (8) Manlifts | $ 140.00 per unit |
| (9) Hydraulic elevator—direct plunger and roped hydraulic up to three stories | $ 105.00 per unit |
| (10) Hydraulic elevator—direct plunger and roped hydraulic 4 stories or more | $ 140.00 per unit |
| (11) Cabled elevator—up to 3 stories | $ 140.00 per unit |
| (12) Cabled elevator—4 to 10 stories | $ 210.00 per unit |
| (13) Cabled elevator—11 to 20 stories | $ 280.00 per unit |
| (14) Cabled elevator—21 or more stories | $ 350.00 per unit |
| (15) Special access elevators | $ 140.00 per unit |
| (16) Screw type elevator | $ 140.00 per unit |
| (17) Wheel chair lift, vertical or incline | $ 105.00 per unit |
| (18) Stairway chair lift | $ 70.00 per unit |
| (19) Elevator installed by variance | $ 140.00 per hour |
| (20) Elevators or dumbwaiters with automatic transfer devices | $ 140.00 per unit |
| (21) Incline elevators | $ 210.00 per unit |
| (22) Construction personnel hoist | $ 140.00 per hour |
| (23) Special purpose personnel elevator | $ 140.00 per unit |
| (24) Rack & Pinion elevator | $ 140.00 per unit |
| (25) Vertical and inclined reciprocating conveyors | $ 140.00 per unit |
| (26) Witnessing of periodic tests | $ 140.00 per hour |
| (27) Automatic guided vehicles on guideways | $1120.00 per unit |

(b) The fee for the inspection of a new installation of any type of conveyance will be $210.00 per hour or any fraction thereof.

(c) The fee for the inspection of any alteration to a conveyance will be $210.00 per hour or any fraction thereof.

(d) The fee for replacement inspections required under Section 3001(b)(3) will be $140.00 per hour, or any fraction thereof.

(e) The fee for field consultations will be $280.00 per hour or any fraction thereof. If the distance to the job site is more than 50 miles from the District Elevator Unit Office, the actual travel time will be added to the inspection time on order to obtain the total charge.

(f) No charge shall be made in any one permit year for more than one inspection except where safety orders have not been complied with and subsequent inspections are necessary or where an alteration has been made to a conveyance. A fee of $140.00 per hour or any fraction thereof shall be charged to determine if applicable safety orders have been complied with.

(g) A fee will be charged for processing and mailing a permit. The fee shall reflect the actual cost of processing and mailing up to a maximum of $15.00.

(h) The fees to cover the cost of various certifications are as follows:

| | |
|---|---|
| (1) Certified Qualified Conveyance Company (CQCC) | $ 700.00 |
| (2) Certified Qualified Conveyance Inspection Company (CQCIC) | $ 700.00 |
| (3) Certified Competent Conveyance Mechanic (CCCM) | $ 210.00 |
| (4) Temporary Certified Competent Conveyance Mechanic (TCCCM) | $ 35.00/ application |
| (5) Emergency Certified Competent Elevator Mechanic (ECCEM) | $ 35.00/ application |
| (6) Certified Qualified Conveyance Inspector (CQCI) | $ 210.00 |
| (7) Renewal of a CQCC, CCCM, CQCIC or a CQCI certification | $ 140.00 |
| (8) Replacement of a CQCC, CCCM, CQCIC or a CQCI certification | $ 35.00 |
| (9) Administration of Exam | $ 100/ exam |

(i) The fee for an erection, construction, or installation permit, including the plan approval, is as follows:

| | |
|---|---|
| (1) First hydraulic elevator, including direct plunger elevator and roped hydraulic elevator in a building | $ 140.00 per story |
| (2) Additional similar conveyances in the same building | $ 140.00 per unit |
| (3) First cable-, screw- and rack and pinion type-elevators in a building | $ 210.00 per story |
| (4) Additional similar conveyances in the same building | $ 210.00 per unit |
| (5) Dumbwaiters, material lifts, vertical reciprocating conveyors and sidewalk elevators | $ 350.00 per unit |
| (6) Wheelchair lifts, stairway lifts, hand-powered elevators and dumbwaiters | $ 280.00 per unit |
| (7) First Escalator or moving walk in a building | $ 560.00 per unit |
| (8) Additional similar conveyances in the same building | $ 140.00 per unit |
| (9) Automatic guided vehicles on guideways | $1120.00 per unit |
| (10) All other conveyances | $ 140.00 per hour |

(j) The fee for an alteration permit, including plan review, is as follows:

| | |
|---|---|
| (1) Permit for one or two alterations to a single unit | $280.00 |
| (2) Permit for same alterations to similar conveyances in the same building | $140.00 per unit |
| (3) Permit for three or more alterations to a single conveyance | $560.00 |
| (4) Permit for same alterations to similar conveyances in the same building | $140.00 per unit |

(k) The fee for any change order review of plans shall be $140.00 per hour with a minimum charge of $280.00.

(*l*) Whenever a person owning or having the custody, management or operation of an elevator fails to pay the fees required under this section within 60 days after notification, he or she shall pay in addition to the fees required by this section, a penalty fee equal to 100 percent of the fee.

NOTE: Authority cited: Sections 60.5, 6308, 7311.4 and 7314, Labor Code. Reference: Sections 60.5, 6308, 7311.4 and 7314, Labor Code.

HISTORY

1. New article 8 (section 344.30) filed 11–30–77; effective thirtieth day thereafter (Register 77, No. 49).
2. Amendment filed 2–28–79; effective thirtieth day thereafter (Register 79, No. 9).
3. Amendment filed 7–9–80; effective thirtieth day thereafter (Register 80, No. 28).
4. Amendment filed 4–16–81; effective thirtieth day thereafter (Register 81, No. 16).
5. Amendment of subsection (a) and new subsection (i) filed 3–24–82; effective upon filing pursuant to Government Code section 11346.2(d) (Register 82, No. 13).
6. Amendment filed 3–2–84 as an emergency; effective upon filing (Register 84, No. 11). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 6–30–84.
7. Order of Repeal of 3–2–84 emergency order filed 7–30–84 by OAL pursuant to Government Code section 11349.6 (Register 84, No. 31).
8. Amendment filed 7–30–84 as an emergency; effective upon filing (Register 84, No. 31). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 11–27–84.
9. Certificate of Compliance transmitted to OAL 11–5–84 and filed 12–4–84 (Register 84, No. 49).
10. Amendment filed 8–16–88 as an emergency; operative 8–16–88 (Register 88, No. 34). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 12–14–88.
11. Certificate of Compliance transmitted to OAL 11–29–88 and filed 12–29–88 (Register 89, No. 2).
12. Amendment filed 5–12–92 as an emergency; operative 5–12–92 (Register 92, No. 20). A Certificate of Compliance must be transmitted to OAL 9–9–92 or emergency language will be repealed by operation of law on the following day.
13. Certificate of Compliance as to 5–12–92 order including amendment of "Cabled" in subsection (a) and NOTE transmitted to OAL 7–20–92 (Register 92, No. 35).
14. Amendment of section heading and section filed 1–3–2003 as an emergency; operative 1–3–2003. A Certificate of Compliance must be transmitted to OAL by 5–5–2003 or emergency language will be repealed by operation of law on the following day. Exempt from OAL review pursuant to Labor Code section 7314 (Register 2003, No. 1).
15. Reinstatement of section as it existed prior to 1–3–2003 emergency amendment by operation of Government Code section 11346.1(f) (Register 2003, No. 23).
16. Amendment of section heading and section filed 6–9–2003 as an emergency; operative 6–9–2003. A Certificate of Compliance must be transmitted to OAL by 10–7–2003 or emergency language will be repealed by operation of law on the following day. Exempt from OAL review pursuant to Labor Code section 7314 (Register 2003, No. 24).
17. Reinstatement of section heading and section as they existed prior to 6–9–2003 amendment by operation of Government Code section 11346.1(f) (Register 2004, No. 32).
18. Amendment of section heading and section filed 10–6–2004 as an emergency; operative 10–6–2004 (Register 2004, No. 41). A Certificate of Compliance must be transmitted to OAL by 2–3–2005 or emergency language will be repealed by operation of law on the following day. Exempt from OAL review pursuant to Labor Code section 7314.
19. Certificate of Compliance as to 10–6–2004 order, including further amendment of section and NOTE, transmitted to OAL 2–3–2005 and filed 3–16–2005 (Register 2005, No. 11).

## Article 9. Correctional Industries

### § 344.40. Definitions.

(a) Complaint. As used in this article, the term complaint shall refer to any written allegation of unsafe or unhealthful working conditions at the place of employment of a state prisoner working in a correctional industry. The Cal/OSHA form 7 may be used as a complaint form, but shall not be required.

(b) Committee. As used in this article, the term committee shall refer to the correctional industry safety committee established in accordance with Department of Corrections administrative procedures at each Department of Corrections facility maintaining a correctional industry.

(c) Committee Notice. A committee notice is a written notice suggesting the institution take specific corrective measures and setting forth an appropriate abatement date. The notice shall be served upon the Department of Corrections employee having supervisory responsibility over the unsafe or unhealthful condition. Copies of the notice shall be served upon the warden or superintendent of the institution and upon the complainant. Further, a copy of the notice shall be posted by the committee at a location where employees exposed to the unsafe or unhealthful condition will be likely to see it. Such posting shall be for a period of 15 days or until the unsafe condition is corrected, whichever is longer.

(d) Filing a complaint. A complaint is deemed filed for purposes of this article upon either being deposited in a readily accessible complaint box or being personally presented to any member of the committee.

NOTE: Authority cited: Section 6304.3, Labor Code. Reference: Sections 6304.2, 6304.3, 6313 and 6413.2, Labor Code.

HISTORY

1. New Article 9 (Sections 344.40–344.46) filed 7–9–80; effective thirtieth day thereafter (Register 80, No. 28).

### § 344.41. Complaint Procedure.

(a) Any state prisoner working in a correctional industry may file with the committee, a complaint alleging unsafe or unhealthful working conditions at her/his place of employment.

(b) The committee shall provide correctional industry employees with an expedient means of transmitting complaints to the committee. All correctional industry employees shall be informed by posted notice of the manner available to them for filing a complaint.

NOTE: Authority cited: Section 6304.3, Labor Code. Reference: Sections 6304.2, 6304.3, 6313 and 6413.2, Labor Code.

### § 344.42. Operation of the Committee.

(a) The committee shall meet as often as necessary but at least every 60 days to discuss health and safety issues relating to employees of correctional industries and to hear and act upon health and safety complaints filed by correctional industry employees.

(b) The committee shall review and take appropriate action on every complaint within 15 calendar days of its filing.

(c) The committee shall take one of the following actions on each complaint:

(1) Issue a notice recommending specific corrective measures in the manner set forth in Section 344.40 above. In addition, the committee shall inform the complainant in writing of his/her right to have the committee forward the original complaint and the notice for correction to the Division of Occupational Safety and Health for review if the complainant believes that the notice is insufficient to make the conditions safe or healthful or if the Department of Corrections refuses or fails to comply with the notice.

(2) Refer the complaint to the appropriate district office of the Division of Occupational Safety and Health for review. Such referral shall be made whenever the committee is unable, for any reason, to resolve the issues raised by the complaint within 15 days from the date of filing. Such referral shall be in writing and shall be made by the 15th calendar day from the day of filing. The complainant, if known to the committee, shall immediately be informed in writing of the referral.

(3) Dismiss the complaint for lack of merit. Unless the complainant is anonymous the committee shall set forth its reasons for dismissal in writing to the complainant. Said writing shall also inform the complainant of his/her right to require the committee to have the initial complaint and the committee finding reviewed by the Division in the event that the complainant finds the conclusions of the committee to be unsatisfactory for any reason.

NOTE: Authority cited: Section 6304.3, Labor Code. Reference: Sections 6304.2, 6304.2, 6313 and 6413.2, Labor Code.

### § 344.43. Duties of the Department of Corrections and the Committee.

(a) Neither the Department of Corrections nor the correctional industry safety committee shall in any way abridge the right of correctional industry employees to file complaints pursuant to this article or to require referral of the complaints to the Division of Occupational Safety and Health.

NOTE: Authority cited: Section 6304.3, Labor Code. Reference: Sections 6304.2, 6304.2, 6313 and 6413.2, Labor Code.

### § 344.44. Division Participation.

(a) Upon receipt of a complaint from the committee, which it determines to constitute a bona fide allegation of a safety or health violation, the Division shall investigate within 3 working days after receipt if the complaint alleges a serious violation, and not later than 14 calendar days after receipt if the complaint alleges a general violation. The Division may give advance notice of an inspection or investigation and may postpone the same if such action is necessary for the maintenance of security at the facility where the inspection or investigation is to be held, or for ensuring the safety and health of the Division's representative who will be conducting the inspection or investigation.

NOTE: Authority cited: Section 6304.3, Labor Code. Reference: Sections 6304.2, 6304.2, 6313 and 6413.2, Labor Code.

(b) In addition to the investigations required under subsection (a) above, the Division shall investigate every fatality and every employment accident involving serious injury to five or more correctional industry employees. The Division may in its discretion investigate any other accident or report of a safety or health violation involving correctional industry employees which are reported to it.

NOTE: Authority cited: Section 6304.3, Labor Code. Reference: Sections 6304.2, 6304.2, 6313 and 6413.2, Labor Code.

### § 344.45. Other Duties of the Correctional Industry Safety Committee.

(a) The committee shall retain each complaint or a copy thereof and a record of all action taken pursuant to that complaint for a period of 3 years from the date that all issues with respect to the complaint have been resolved. Such records shall be made available to the Division.

NOTE: Authority cited: Section 6304.3, Labor Code. Reference: Sections 6304.2, 6304.2, 6313 and 6413.2, Labor Code.

### § 344.46. Other Division Jurisdiction over Unsafe Conditions Pertaining to State Prisoners.

(a) When the Division receives information, pursuant to Labor Code Section 6314, about injury or death of a state prisoner resulting from labor performed by the prisoner, the Division may make recommendations to the Department of Corrections, with or without conducting an inspection, of ways in which corrections might improve the safety of the working conditions and work areas of state prisoners and other safety matters.

(b) If the Department of Corrections fails to comply with the recommendations described in subsection (a) above, or in any other case in which the Division deems the safety of any state prisoner shall require it, the Division may conduct hearings and after such hearings may adopt such special orders, rules, or regulations, or otherwise proceed as authorized in Chapter 1 (commencing with Section 6300 of Division 5 Part 1 of the Labor Code) as it deems necessary. The Department of Corrections shall comply with any such order, rule, or regulations so adopted by the Division.

NOTE: Authority cited: Section 6304.3, Labor Code. Reference: Sections 6304.2, 6304.3, 6313 and 6413.2, Labor Code.

## Article 10. Civil and Criminal Enforcement Policy of the Division of Occupational Safety and Health

### § 344.50. Civil Inspections and Investigations.

Compliance personnel of the Division are responsible for conducting inspections and investigations under the California Occupational Safety and Health Act for the purpose of invoking civil enforcement remedies only. If hazardous or violative conditions are found, the civil enforcement remedies which can be utilized include, but are not limited to, the issuance of citations and civil penalties, special orders, orders to take special action, the initiation of injunction proceedings, issuance of orders prohibiting use, and the revocation or suspension of permits. Division compliance personnel have no authority to initiate criminal proceedings.

NOTE: Authority cited: Sections 6308, 6314 and 6315, Labor Code. Reference: Sections 6314 and 6315, Labor Code.

HISTORY

1. New Article 10 (Sections 344.50–344.53) filed 7–9–80; effective thirtieth day thereafter (Register 80, No. 28).

### § 344.51. Criminal Investigations.

The central function of the Bureau of Investigations, within the Division of Occupational Safety and Health, is to conduct criminal investigations. The Bureau must investigate accidents involving violations of a standard, order, or special order, or section 25910 of the Health and Safety Code in which there is a serious injury to five or more employees, death, or request for prosecution by a Division representative. The Bureau of Investigations is the only entity within the Division which is em-

powered to conduct criminal investigations and to refer the results of such investigations when appropriate to a city attorney or district attorney for necessary action. The Bureau must analyze the circumstances surrounding the violation to determine whether the conduct is sufficiently aggravated to fall within the scope of Labor Code sections 6423, 6425 and other penal statutes.

NOTE: Authority cited: Sections 6308, 6314 and 6315, Labor Code. Reference: Sections 6315 and 6314, Labor Code.

HISTORY

1. Editorial correction of Health and Safety section cited in text (Register 91, No. 23).

### § 344.52. Referral of Cases Other Than Accident Cases by Compliance Personnel to the Bureau of Investigations.

If Division compliance personnel become aware that there are conditions which may constitute criminal violations, the case must be referred trough the Regional Manager/Supervising Industrial Hygienist, with a copy to the appropriate Deputy, to the respective Northern or Southern Office of the Bureau of Investigations. In cases referred for investigation the Supervising Special Investigator will assign the case to a Special investigator for investigation. The investigator will review the facts of the case, interview witnesses, and otherwise, conduct a thorough investigation. The assigned investigator shall prepare a report to the Supervising Special Investigator which shall include a summary of evidence, findings, and recommendations for appropriate action.

NOTE: Authority cited: Sections 6308, 6314, 6315, Labor Code. Reference: Sections 6315, 6314, Labor Code.

### § 344.53. Nonreferral of Other Than Willful or Repeated Violations in the Context of Scheduled Inspections by Compliance Personnel to the Bureau of Investigations.

Whenever the Division conducts a scheduled inspection according to a general administrative plan in contrast to an accident, complaint, or follow-up investigation, Division compliance personnel shall invoke only the civil enforcement remedies as set forth in Section 344.50 unless the violation is characterized as willful or repeated. This section shall not limit he Division's prerogative to enforce Labor Code Section 6326.

NOTE: Authority cited: Sections 6308, 6314, 6315, Labor Code. Reference: Sections 6315, 6314, Labor Code.

## Article 11. License Requirements—Crane and Derrick Certification

### § 344.60. Licensing of Certifiers of Cranes and Derricks—Requirements.

(a) Any person engaging in the testing, examination and/or certification of cranes, including but not limited to tower cranes, or derricks, used in lifting service exceeding three tons rated capacity, as defined in section 4885 of title 8 of the California Code of Regulations, as required pursuant to Labor Code section 7375 and sections 5020 through 5025 of title 8 of the California Code of Regulations shall apply for and obtain a license from the Division pursuant to this article or be approved by the Division to work as a surveyor under a license issued pursuant to this article prior to engaging in such activities.

(1) For the purposes of this article a "licensed certifier" refers to any individual or agency holding a license pursuant to this article.

(2) For the purposes of this article "approval", "approved surveyor" or "surveyor" refers to an individual who has been approved to certify cranes only under the authority and supervision of a licensed certifier.

(b) Any person authorized by the Division to certify cranes and/or derricks prior to the effective date of this article may continue to perform services under such authority. Any such authority shall expire, however, in the year 1992. For purposes of the month of expiration in the year 1992, the Division will use the first day of the month in which the authorization was regularly scheduled to expire regardless of year. Any certificating agency or person desiring to continue to provide services pursuant to this article must have applied for and obtained a license from the Division prior to expiration of the existing authorization.

(c) All persons or agencies licensed or approved pursuant to this Article shall comply with the provisions of Labor Code section 7375(c).

NOTE: Authority cited: Sections 60.5, 6308 and 7375, Labor Code. Reference: Sections 7375, 7378 and 7379 Labor Code.

HISTORY

1. New section filed 7-15-91 as an emergency; operative 7-15-91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11-12-91 or emergency language will be repealed by operation of law on the following day.
2. Repealer of NOTE in subsection (a) and amendment of subsection (c) and NOTE filed 3-18-92; operative 3-18-92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

### § 344.61. License and Approval—Application Form and Applicant Qualifications.

(a) A license to certify cranes pursuant to this article may be obtained by submitting a completed application to the Division and successfully completing a written examination as set forth herein. Application forms may be obtained by calling the Headquarters offices of the Division or by written request to Post Office Box 603, San Francisco, California 94101.

(1) An applicant seeking a license must satisfy one of the following criteria:

(A) Be an agency or person satisfying the definition of "certificating agency" as set forth in section 4885 of title 8 of the California Code of Regulations, or,

(B) Be an agency or person qualified to certify cranes pursuant to section 5021(a)(1) of title 8 of the California Code of Regulations who is not a certificating agency as defined but who will be operating under the direct technical supervision of a certificating agency as defined.

(2) All applicants must possess knowledge of sections 4884, et. seq. of Title 8 of the California Code of Regulations, as well as ANSI (American National Standards Institute) and SAE (Society of Automotive Engineers) standards, relating to the design and operation of cranes and derricks, including those specifically applicable to the types of cranes for which a license will be issued. In addition, all applicants must demonstrate at least five years related experience with cranes or derricks. This five years of experience must include not less than two years of crane related field duties such as crane inspection as a crane operator, heavy equipment mechanic, shop foreman, operations supervision, rigging specialist, or mechanical or civil engineer. Related education may be substituted for experience at a ratio of two years of education for one year of experience up to three years.

(A) Individuals who have been approved by the Division pursuant to section 5021(a) of Title 8 of the California Code of Regulations and engaging in the certification of cranes prior to the effective date of this Article may use such periods of time to satisfy the experience requirements of this Part.

(b) Any applicant for a license desiring to employ persons as surveyors to conduct inspections and examinations under the authority and supervision of the license must request that such individuals be approved by the Division in the application for license. Any surveyor desiring to work under the authority and supervision of a licensed certifier must meet the requirements of this subsection and successfully complete a written examination as set forth herein.

(1) To be approved the surveyor must possess knowledge and experience with the specific equipment subject to the license and demonstrate at least five years of related experience as set forth in subsection (a)(2) above. Such surveyors will be approved by the Division to perform certification services only under the authority and supervision of the person issued a license pursuant to this article. Approval of a surveyor pursuant to this subsection does not constitute authorization to engage in certification activities outside the authority of the license.

Note: A person may be considered approved as a surveyor by the Division if the person has been previously approved by the Division as a surveyor under another license issued pursuant to this article and the survey-

or will be engaging in the certification of the same type(s) of equipment authorized under the previous license.

(c) In the case of a business entity, such as a corporation, or a business association, a license will be issued only where a designated responsible managing agent of the entity or association has been licensed pursuant to this article. In such cases the license will be valid only so long as the responsible managing agent remains with the entity or association. If the qualifying managing agent should leave the entity or association a new managing agent must meet the requirements of this article and be licensed pursuant thereto.

(d) Application Form. Any application for license and approval will be accepted by the Division upon the filing of a completed application, payment of the application fee and full compliance with all other requirements thereof. All information and attachments shall be given under penalty of perjury. In the case of an entity or agency, all submissions shall be made by a person expressly authorized in writing to act on behalf of the applicant. The application shall include, but not be limited to, the following:

(1) A statement of the types of cranes and/or derricks, including their capacities, the applicant desires to certify pursuant to the license.

(2) A statement of qualifications and experience satisfying at a minimum the criteria set forth in this section as well as any and all other qualifications the applicant wishes the Division to consider.

(3) A list of surveyors, if any, to be approved under the license, including their respective qualifications, whether any have been previously approved by the Division, and the license under which the prior approval was issued.

(4) Any other relevant information the applicant desires to be considered by the Division.

(e) Written examination.

Any qualified applicant and surveyor to be approved under a license must successfully complete a written examination administered by the Division or its authorized representative, as set forth in this section. The Division will evaluate the applicant's qualifications based on the application and the applicant's training, knowledge and experience before allowing participation in the written examination.

Note: An applicant will be considered "qualified" if the qualification and experience requirements of this article are satisfied.

The written examination will address the following, among other things:

(1) Applicable provisions of title 8 of the California Code of Regulations, including operation, testing, inspection and maintenance requirements, and the duties and recordkeeping responsibilities as set forth in this article.

(2) Safe operating and engineering principles and practices with respect to the specific types cranes or derricks subject to the license, including inspection and proof loading requirements.

NOTE: Authority cited: Sections 60.5, 6308 and 7375, Labor Code. Reference: Section 7375, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of subsections (a)(2), (b)(1) and NOTE and new subsection (a)(2)(A) filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

## § 344.62. Issuance of License and Approvals.

(a) If the applicant and the surveyor(s) the applicant is seeking to be approved under the license satisfy the requirements of this article, the Division shall issue a license and approval(s).

(b) The Division may impose restrictions on the scope and use of the license or approval(s), such as limiting it to specific types of cranes or derricks based upon the qualifications of the applicant, the desired license, and the qualifications of any surveyor approved under the license.

NOTE: Authority cited: Sections 60.5, 6308 and 7375, Labor Code. Reference: Section 7375, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

## § 344.63. License Application—Processing Time.

(a) Within 30 business days of receipt of a completed application for license the Division shall inform the applicant in writing that it is either complete and accepted for filing or that it is deficient and what specific information or documentation is required to complete the application. An application is considered complete if it is in compliance with the requirements of this article.

(b) Within 30 business days of the date of the filing of a Completed application the Division shall inform the applicant if the minimum requirements of this article are satisfied and of the applicants eligibility to take the written examination.

(c) Within 60 business days from the date of completion of the written examination the Division shall inform the applicant in writing of its decision regarding the issuance of the license or approval(s).

NOTE: Authority cited: Sections 60.5, 6308 and 7375, Labor Code; and Section 15376, Government Code. Reference: Section 7375, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

## § 344.64. Duration and Renewal of License.

(a) The license shall be valid for three years.

(b) Application for renewal shall be filed with the Division not less than 60 days prior to expiration. A renewal may be obtained by filing a completed application for renewal meeting the requirements of section 344.61 hereof.

(c) All applicants for renewal and approved surveyors shall successfully complete a written examination every six years.

NOTE: Authority cited: Sections 60.5, 6308 and 7375, Labor Code. Reference: Section 7375, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

## § 344.65. License Application, Renewal and Examination Fees.

(a) To cover the costs associated with investigating and evaluating the application for a license and administering the required written examination, a fee of $250.00 for the application, plus $190.00 for the written examination shall be paid.

(b) Where the applicant is seeking the approval of surveyors to work under the authority and supervision of the license either in the application for license or subsequent to the issuance of the license, a fee of $190.00 for each surveyor to be approved shall be paid to cover the costs associated with investigating the request for approval and administering the written examination.

(c) To cover the costs associated with investigating and evaluating an application for renewal of a license a fee of $75.00 shall be paid.

(d) To cover the costs associated with investigating and evaluating a request to transfer a person approved under an existing license to another license a fee of $50.00 shall be paid.

NOTE: Authority cited: Sections 60.5, 6308, 7375, and 7380, Labor Code. Reference: Sections 7375 and 7380, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of subsection (d) and NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

### § 344.66. Denial of License.

(a) The Division shall deny issuance of a license if the applicant does not satisfy the requirements of this article. In denying a license, the Division shall notify the applicant, in writing, as set forth in this article, specifying the reasons for such denial and shall send a copy thereof to the Director.

(b) Any applicant denied a license by the Division may appeal such denial to the Director. The Director shall hold a hearing at such place designated by the Director or his authorized representative within five working days of the appeal. The applicant has the burden of establishing qualification for a license. The hearing shall be presided over by the Director or authorized representative.

(c) The Director shall issue a decision within 10 days of the hearing. The Director's decision shall be final except for any rehearing or judicial review provided for by law. All requests for rehearing shall be filed with the Director within ten days from the date of the Director's denial.

NOTE: Authority cited: Sections 60.5, 6308, and 7375, Labor Code. Reference: Section 7375, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of subsection (a) and NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

### § 344.67. Revocation or Suspension of License.

(a) The Division may at any time, upon a showing of good cause and after notice and an opportunity to be heard, revoke or suspend any license issued pursuant to this article.

(b) Notice shall be in writing and served at least two days in advance of the hearing. Service shall be by personal service or certified mail to the address as shown on the application form. The notice shall specify the reasons for the action taken by the Division in order that the applicant may prepare for the hearing. The Division shall also include within the notice of revocation or suspension specific conditions which must be met before the applicant will be entitled to apply for a new certification.

(c) The hearing shall be held at the Division's Headquarters offices or at such other location as may be designated by the Director and shall be presided over by the Chief of the Division or authorized representative.

(d) During the hearing, the Division shall establish good cause for the action taken. Good cause is deemed to exist if the Division establishes any of the criteria set forth in Labor Code section 7376(a) or that the licensed certifier has committed any of the following acts:

(1) Failure to meet or comply with the requirements of this article or the limitations imposed on the license;

(2) Performance of work not in compliance with applicable laws and regulations.

(e) The period of suspension or revocation for the commission of any act referenced in Labor Code section 7376(a) shall be six months for the first such suspension and one year for each subsequent suspension or revocation.

(1) The commission of any other act referenced in subsection (d) may result in suspension or revocation of up to one year.

(f) Following the period of suspension or revocation, an application for license may be filed with the Division.

(g) The certificating agency or person may appeal such suspension or revocation to the Director. The Director shall hold a hearing at such place designated by the Director or authorized representative within five working days of the appeal. The certificating agency shall have the burden of establishing qualification for licensure.

(h) Following the hearing, the Director shall issue a decision. The Director's decision shall be final except for any rehearing or judicial review provided for by law. All requests for rehearings shall be filed with the Director within 10 days from the date of the Director's decision.

(i) The filing of an appeal shall not stay the revocation or suspension, and such action shall remain in effect until such time as the applicant presents proof that the specified written conditions required by the Division are met or until otherwise ordered after resolution of the appeal.

NOTE: Authority cited: Sections 60.5, 6308, 7375, and 7376, Labor Code. Reference: Sections 7375 and 7376, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

## Article 12. Tower Cranes—Operating Permit and Certification Requirements

### § 344.70. Tower Cranes—Operating Permit—Scope and Requirements.

(a) The permit requirements of this article apply to two types of tower cranes referred to in these orders as:

(1) "Fixed Tower Crane", which includes free standing and climber type tower cranes where the vertical mast or tower is attached to a fixed anchorage, foundation or undercarriage attached to rails, as defined in Labor Code section 7371(a) and (b) and section 4885 of title 8 of the California Code of Regulations, and,

(2) "Mobile Tower Crane", which includes mobile and self erecting type tower cranes, as defined in Labor Code section 7371(a) and (c) and section 4885 of title 8 of the California Code of Regulations.

(b) Any employer operating a fixed or mobile tower crane as described in this section shall obtain a permit from the District Office of the Division pursuant to this article prior to operating the tower crane.

**Note:** The requirements of this article are in addition to the permit requirements of section 341 et seq. of title 8 of the California Code of Regulations applicable to the erection of the vertical mast or tower for a fixed tower crane.

(c) For the purposes of this article an operating permit is required when the fixed or mobile tower crane is ready for operation, which means the crane has been erected (in the case of a fixed tower crane) and certified for operation by a Division–licensed crane certifier.

NOTE: Authority cited: Sections 60.5, 6308, 7371, 7373 and 7375, Labor Code. Reference: Sections 7371, 7373 and 7375, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

[The next page is 42.3.]

### § 344.71. Application for and Issuance of Operating Permit.

(a) Fixed and Mobile Tower Cranes—Application for Permit—Location.

(1) In the case of a fixed tower crane the application must be filed at he District Office nearest the location where the tower crane will be operated.

(2) In the case of a mobile tower crane the application may be filed at the District Office nearest the location where the mobile tower crane will be operated or nearest the principal business offices of the applicant.

(b) If the responsibility for operation of the fixed or mobile tower crane changes during the effective period of an existing permit the new employer shall apply for and obtain a separate permit from the Division as set forth in this article prior to continuing operation of the crane.

(c) Blank application forms and fee schedules may be obtained from any district Office of the Division.

(d) A permit may be issued by the Division following the filing of a completed application form and full compliance with all the requirements thereof. Application fees must be paid to the Division upon filing of the application. All inspection fees must be paid by the applicant before the permit will be issued by the Division, unless a temporary permit has been issued pursuant to section 344.72(d) of this article.

(1) In the case of a fixed tower crane the operating permit shall be valid only for the period it is located and operated at the specific site referenced in the permit.

(A) If a fixed tower crane is relocated to a new position on the same project a new operating permit is required.

(2) In the case of a mobile tower crane the permit shall be valid for one year.

(e) The information and attachments submitted with the application for an operating permit shall comply with this section and be given under penalty of perjury by a person duly authorized in writing to act on the behalf of the applicant with respect to the matters referenced in the application. The application shall contain the following:

(1) Employer/Applicant name, address, phone number, project safety contact person, employer's representative at the site including title and phone number and employer/applicant Contractor's Licence No.

(2) Designation of type of contractor and description of crane being operated.

(3) Location and phone number of crane jobsite including nearest cross street, city and county.

(4) Number of employees and anticipated starting date.

(5) Designation of existence of high voltage lines.

(6) Certification that the applicant possesses knowledge of the applicable occupational safety and health standards and manufacturer's operating instructions for the subject crane, as well as a statement of the applicants related training, education and/or experience within the last five years.

(7) Certification that the applicant will comply with all applicable standards and other lawful orders of the Division, and, that the conditions, practices, means, methods, operations or processes used or proposed to be used will be safe, and healthful and that the permit to operate will be posted at the site of operation.

(A) In addition, in the case of a fixed tower crane, the employer shall provide a written job plan which describes the intended operation of the subject crane including the specific uses of the crane and the nature and weight of anticipated loads.

(8) In the case of a fixed tower crane, certification that a Division–licensed certifier or surveyor, or safety representative for the distributor or manufacturer, will be present during erection, climbing and dismantling operations to ensure that such processes and operations are performed in accordance with manufacturer recommendations and applicable standards or orders.

(9) A statement of all previous business identities of the applicant within 10 years prior to the date of application.

(A) "Business identities" include, but shall not be limited to, fictitious business names, corporate names, and/or joint venture partnerships and any other business affiliations in the construction industry involving the use of cranes.

(10) A certification issued by a Division–licensed certifier for subject crane.

(f) The applicant issued a permit pursuant to this article shall have the fixed or mobile tower crane subject to the permit inspected by the Division twice a year. One of these required inspections must be completed prior to the issuance of a permit pursuant to this article.

**Note:** The initial permit inspection shall be considered as one of the two mandatory yearly inspections.

(g) The holder of a permit issued pursuant to this article shall notify the Division of the following:

(1) In the case of a fixed tower crane the date and time:

(A) The crane will commence operation;

(B) The climbing of the crane; and,

(C) The dismantling of the crane.

(2) In the case of a mobile tower crane the date, time and location of for each new site of operation. This notification is required only in instances where the mobile tower crane will be located at any given site in excess of one day. Where the crane will be operated at any site, or multiple sites, for less then one da notification is not required.

**Note:** The notification must be provided to the Division at least 24 hours prior to the activity which is the subject of the notification, and may be made in writing or by telephone followed by written notification. The notification shall be made to the District Office of the Division from which the permit was obtained and must include the date and time of the intended activity.

NOTE: Authority cited: Sections 60.5, 6308, 7372, 7373 and 7375, Labor Code. Reference: Sections 7371, 7372, 7373, 7382 and 7383 Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of subsection (e), new subsections (e)(1)–(5) and subsection renumbering, relettering the second subsection (e) and (f) to subsections (f) and (g) respectively and amendment of NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).
3. Change without regulatory effect amending subsection (e)(8) filed 3–23–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 12).

### § 344.72. Tower Crane Operating Permit Application—Issuance and Processing Time.

(a) Within 5 business days of receipt of an application the Division shall inform the applicant in writing of whether it is accepted for filing and if not what deficiencies exist with reference to the application.

(b) The Division shall issue a permit within 10 days of the receipt of a completed application.

(c) The Division may issue a temporary permit pending the payment of any inspection fees where such fees are not paid in advance. All inspection fees must be paid within 30 business days of the date of the invoice indicating such fees are due. If the inspection fees are not paid within thirty business days as set forth herein, the temporary permit shall immediately expire.

NOTE: Authority cited: Sections 60.5, 6308, 7373 and 7375, Labor Code; and Section 15376, Government Code. Reference: Sections 7371 and 7373, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of subsection (b) and NOTE repealer of subsection (c) and relettering filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

### § 344.73. Tower Crane Operating Permit and Inspection Fee Schedule.

(a) To cover the costs associated with investigating and issuing an operating permit for a fixed or mobile tower crane, the fee of $200.00 shall be paid.

**Note**: The permit to operate and the associated application fee is separate from, and in addition to, the permit and fee requirements of section 341 of title 8 of the California Code of Regulations for the erection of a fixed tower crane.

(b) In addition to the fees set forth in subsection (a) of this section, the hourly fee of $75.00 or fraction thereof, including travel time as set forth in part (1) of this subsection, based on quarter hour intervals, with a minimum of one–half hour, shall be paid to cover the costs associated with inspecting any fixed or mobile tower crane pursuant to the permit requirements of this article and Labor Code section 7373.

(1) Travel time shall include the time from the District Office of the Division processing the request for a permit to the inspection site, and from the inspection site back to the District Office. In the event the travel encompasses multiple permit inspections of different cranes operated by different employers the Division shall allocate the travel time equitably among the permit applicants.

NOTE: Authority cited: Sections 60.5, 6308, 7373 and 7375, Labor Code. Reference: Sections 7371 and 7373, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

## § 344.74. Denial of Permit.

(a) The Division shall deny issuance of an operating permit if the provisions of this article are not satisfied. Upon denying an operating permit to an applicant employer, the Division shall promptly notify the employer, in writing, specifying the reasons for such denial and shall send a copy thereof to the Director.

(b) Any employer denied a permit by the Division may appeal such denial to the Director. The Director shall hold a hearing at such place designated by the Director or authorized representative for the convenience of the attending parties within two working days of the employer's appeal. The employer has the burden of establishing that it qualifies for a permit. The hearing shall be presided by the Director or authorized representative and shall also be open to employees or employees' representative. The employer shall notify the employees or employees' representative of such hearing a reasonable time prior to the such hearing, but in no case later than 24 hours prior to the hearing. Proof of such notification by the employer shall be made at the hearing.

(c) The Director shall issue a decision within ten business days of the hearing. The Director's decision shall be final except for any rehearing or judicial review provided for by law. All requests for rehearing shall be filed with the Director within ten days from the date of the Director's decision.

NOTE: Authority cited: Sections 60.5, 6308, 7373 and 7375, Labor Code. Reference: Sections 7371 and 7374, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of subsection (a) and NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

## § 344.75. Revocation or Suspension of Permit.

(a) The Division may at any time, upon a showing of good cause and after notice and an opportunity to be heard, revoke or suspend any permit issued pursuant to this article.

(b) Notice shall be in writing and served upon the applicant at least 24 hours in advance of the hearing. Service shall be by personal service or certified mail to the project address as shown on the application form. The notice shall specify the reasons for the action taken by the Division. The Division shall also include within the notice of revocation or suspension specific conditions which must be met before the applicant will be entitled to resume operation of the tower crane.

(c) The hearing shall be held as soon as possible at the Division's headquarters offices or at such other location as may be designated by the Director and shall be presided by the Chief of the Division or authorized representative.

(d) During the hearing, the Division shall establish good cause for the action taken. Good cause is deemed to exist if the Division establishes any of the criteria set forth in Labor Code section 7374(a).

(e) The period of suspension or revocation for the commission of any act referenced in Labor Code section 7374(a) shall be six months for the first such suspension and one year for each subsequent suspension or revocation.

(1) The commission of any other act referenced in subsection (d) may result in suspension or revocation of up to one year.

(f) The crane employer may appeal such suspension or revocation to the Director. The Director shall hold a hearing at such place designated

by the Director or authorized representative for the convenience of the attending parties within five working days of the appeal. The crane employer shall notify employees and employees' representatives of such hearing in a reasonable time prior to the hearing.

The crane employer shall have the burden of establishing qualification for crane operation.

(g) Following the hearing, the Director shall issue a decision within ten business days. The Director's decision shall be final except for any rehearing or judicial review provided for by law. All requests for rehearings shall be filed with the Director within ten days from the date of the Director's decision.

(h) The filing of an appeal shall not stay the revocation or suspension, and such action shall remain in effect until such time as the applicant presents proof that the specified written conditions required by the Division are met or until otherwise ordered after resolution of the appeal.

NOTE: Authority cited: Sections 60.5, 6308, 7373, 7374 and 7375, Labor Code. Reference: Sections 7371, 7373 and 7374, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Repealer of subsections (d)(1)–(2) and amendment of NOTE filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).

## Article 13. Certification Requirements

### § 344.80. License—Duties and Recordkeeping Requirements.

Every crane or derrick certifier, licensed pursuant to article 11 of these orders shall comply with the following requirements:

(a) All tests and examinations shall be performed in accordance with the requirements of title 8 of the California Code of Regulations commencing with section 4884.

(1) No certification shall be issued without first performing all necessary tests and examinations as required by applicable standards or orders, including but not limited to the examination of items 1 through 14 referenced in Plate V of section 4885 of title 8 of the California Code of Regulations.

(2) All certifications shall be issued in a form consistent with that set forth in Plate V of section 4885 of title 8 of the California Code of Regulations.

(b) All testing, examinations, inspections, heat treatments, and recordkeeping procedures shall be carried out by or under the direct supervision of the licensed certifier or surveyor.

(1) Certificates issued pursuant to the license shall be completed and personally signed by the licensed certifier or surveyor performing the test and/or examination.

(c) The District Office of the Division nearest the site of inspection shall be notified of any deficiencies affecting the safe operation of the crane found during the course of any certification inspection. This notification shall be made within five working days following the test/examination date and shall be submitted on a form equivalent to Division form No. IS–162 containing the information set forth in subsection (j) of this section.

**Note:** Blank IS–162 forms may be obtained from any District Office of the Division: or, see Plate 1 appended to these orders.

(d) Deficiencies for the purposes of this article include any and all conditions found during the course of the certification examination or testing which do not comply with applicable safety orders or manufacturer's specifications.

(e) Correction of all deficiencies affecting the safe operation of the crane shall be verified by the licensed certifier or surveyor prior to issuance of a certification. A signed and dated verification of correction shall be submitted to the Division location where notification was given pursuant to subsection (d) of this section and on the IS–162 form or equivalent along with the certificate issued.

(f) Complete and accurate records of all inspections, tests, and other work performed shall be maintained. At a minimum the licensed certifier shall maintain an inspection record for each crane or derrick inspected and/or tested for certification indicating all items inspected or tested during the course of the certification inspection, as well as copies of any Certifier's Notice of Crane Safety Deficiencies issued and records pertaining to the verification of corrections of any such deficiencies, and all certificates issued. All records shall be maintained for a period of at least five years and shall be made available to the Division upon request.

(g) The following records of the operating history of each crane being examined and/or tested for certification shall be reviewed, if available:

(1) Records of previous certifications and Notices of Crane Safety Deficiencies.

(2) Records of tests performed by others, and,

(3) Records of any modifications, downgrading, upgrading, accidents, and damage relating to the crane or derrick.

(h) Any inspection and/or testing, including proof load tests, being performed shall be limited to those machines authorized by the License.

(i) The Division shall be notified, within 24 hours, in writing if any approved surveyor ceases to be employed by the licensed certifier.

(j) The Notice of Crane Safety deficiencies shall contain at least the following:

(1) Name, address, license number and signature of the licensed certifier or surveyor conducting the inspection.

(2) Name, address and phone number of crane owner and location of crane.

(3) Description and rated capacity of equipment or device, including manufacturer, model No., serial No., and owners identification No., if any.

(4) Date of inspection and notification to the owner and description of deficiencies found during the course of the inspection.

(5) A statement that a certification will not be issued until all deficiencies affecting the safe operation of the crane or derrick have been corrected.

(6) Verification and dates of correction of noted deficiencies.

**Note:** See Plate 1 appended hereto for a sample form IS–162.

NOTE: Authority cited: Sections 60.5, 6308 and 7375, Labor Code. Reference: Sections 7375, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.
2. Amendment of subsections (a)(1), (b), (g) and NOTE, repealer of subsection (c) and relettering and new subsection (d) filed 3–18–92; operative 3–18–92 pursuant to Government Code section 11346.2(d) (Register 92, No. 13).
3. Change without regulatory effect amending subsection (a)(1) filed 6–7–94 pursuant to title 1, section 100, California Code of Regulations (Register 94, No. 23).

PLATE 1

**NOTICE OF CRANE SAFETY DEFICIENCIES**
(Sample format—IS 162)

Equipment Operator: _____ Owner: _____

Address: _____ Address: _____

Description and location of equipment inspected: _____

_____

Manufacturer: _____ Model No.: _____ Serial No.: _____

Owner I.D.: _____ Rated Capacity: _____

The following deficiencies were found to exist during the inspection, testing and/or examiantion of the above–referenced equipment on _____ .

| Description of Condition to be Corrected | Verification Date and Signature |
|---|---|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |
| 9. | |

(See attached sheet for additional items or descriptions, if any.)

A certificate to operate the above–referenced equipment will not be issued until the items noted herein are corrected and verified as such by the undersigned.

A copy of this Notice, as well as any subsequent verification of corrections, shall be sent, as required, to the Division of Occupational Safety and Health. Labor Code 7375 and Sections 344.6, et. seq. and 4884, et. seq. of Title 8 of the California Code of Regulations prohibit the operation of any crane or derrick subject to the certification requirements thereof to be operated without a valid certification issued by a Division–licensed certifier or approved surveyor.

Licensed Certifier, Name: _____ License No.: _____

Address: _____

Approved Surveyor, Name: _____ Title: _____

Date: _____ Signature: _____

### § 344.81. Fixed and Mobile Tower Crane Certification.

(a) Fixed tower cranes and mobile tower cranes subject to this article shall be examined, tested and certified pursuant to article 99 annually and in the case of a fixed tower crane whenever it is erected at a new site.

(b) If a fixed tower crane is relocated to a new position on the same project a new certification is required. This requirement does not apply to the climbing of the tower crane.

(c) Each annual certification of a fixed or mobile tower crane shall include examination and testing of the crane structure and its parts as required pursuant to sections 4884 et seq. of title 8 of the California Code of Regulations and manufacturer recommendations. In the case of any fixed tower crane the annual certification must include detailed non-destructive tests of the load hook, slewing ring, tower section and slewing ring bolts, as well as all structural welds in the crane's tower section, mast and the jibs shall be performed where applicable. All deficiencies shall be corrected prior to use.

**Note:** Written records of the tests and test procedures performed shall be maintained and made available to the Division upon request for a period of five years.

NOTE: Authority cited: Sections 60.5, 6308, 7373 and 7375, Labor Code. Reference: Sections 7370–7383, Labor Code.

HISTORY

1. New section filed 7–15–91 as an emergency; operative 7–15–91 (Register 91, No. 44). A Certificate of Compliance must be transmitted to OAL 11–12–91 or emergency language will be repealed by operation of law on the following day.

## Article 14. Limitations on Division Eligibility for Certifications, Licenses, and Registrations for Aliens

### § 344.85. Limitations on Division Eligibility for Certifications, Licenses, and Registrations for Aliens.

(a) All eligibility requirements contained herein shall be applied without regard to the race, creed, color, gender, religion, or national origin of the applicant.

(b) Pursuant to Section 411 of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996, [Pub. L. No. 104–193 (PRWORA)], (8 U.S.C. section 1621), and notwithstanding any other provision of this division, an alien who is not a qualified alien, a nonimmigrant alien under the Immigration and Nationality Act (INA) (8 U.S.C. section 1101 et seq.), or an alien paroled into the United States under Section 212(d)(5) of the INA [(8 U.S.C. 1182(d)(5)], for less than one year, is not eligible for any of the following benefits, except as provided in 8 U.S.C. 1621(c)(2):

(1) A certification as an asbestos consultant or site surveillance technician pursuant to 8 CCR sections 341.15 and Business and Professions Code Section 7180,

(2) A blaster's license pursuant to 8 CCR sections 344.20 through 344.22 and Labor Code Section 7990,

(3) A license to certify cranes or derricks pursuant to 8 CCR section 344.60 through 344.67 and Labor Code Section 7375,

(4) A registration for asbestos-related work pursuant to 8 CCR sections 341.6 through 341.14 and Labor code Section 6501.5,

(5) A certification as a gas tester pursuant to 8 CCR sections 7104, 8406 and 8424 and Labor Code Section 7999.

(6) A certification as a safety representative pursuant to 8 CCR section 8406 and Labor Code Section 7999.

(c) A qualified alien is an alien who, at the time he or she applies for, receives, or attempts to receive a public benefit, is, under Section 431(b) and (c) of the PRWORA [8 U.S.C. section 1641(b) and (c)], any of the following:

(1) An alien lawfully admitted for permanent residence under the INA (8 U.S.C. section 1101 et seq.).

(2) An alien who is granted asylum under Section 208 of the INA (8 U.S.C. section 1158).

(3) A refugee who is admitted to the United States under Section 207 of the INA (8 U.S.C. section 1157).

(4) An alien who is paroled into the United States under Section 212(d)(5) of the INA [8 U.S.C. section 1182(d)(5)] for a period of at least one year.

(5) An alien whose deportation is being withheld under Section 243(h) of the INA [8 U.S.C. section 1253(h)], as in effect immediately before the effective date of Section 307 of division C of Public Law 104–208), or Section 241(b)(3) of such Act [8 U.S.C. Section 1251(b)(3)], (as amended by Section 305(a) of division C of Public Law 104–208).

(6) An alien who is granted conditional entry pursuant to Section 203(a)(7) of the INA as in effect prior to April 1, 1980. [8 U.S.C. § 1153(a)(7)] (See editorial note under 8 U.S.C. Section 1101, "Effective Date of 1980 Amendment.")

(7) An alien who is a Cuban or Haitian entrant (as defined in Section 501(e) of the Refugee Education Assistance Act of 1980 [8 U.S.C. § 1522 note)].

(8) An alien who meets all of the conditions of subparagraphs (A), (B), (C), and (D) below:

(A) The alien has been battered or subjected to extreme cruelty in the United States by a spouse or a parent, or by a member of the spouse's or parent's family residing in the same household as the alien, and the spouse or parent of the alien consented to, or acquiesced in, such battery or cruelty. For purposes of this subsection, the term "battered or subjected to extreme cruelty" includes, but is not limited to being the victim of any act or threatened act of violence including any forceful detention, which results or threatens to result in physical or mental injury. Rape, molestation, incest (if the victim is a minor), or forced prostitution shall be considered to be acts of violence.

(B) There is a substantial connection between such battery or cruelty and the need for the benefits to be provided in the opinion of Division. For purposes of this subsection, the following circumstances demonstrate a substantial connection between the battery or cruelty and the need for the benefits to be provided:

1. The benefits are needed to enable the alien to become self-sufficient following separation from the abuser.

2. The benefits are needed to enable the alien to escape the abuser and/or the community in which the abuser lives, or to ensure the safety of the alien from the abuser.

3. The benefits are needed due to a loss of financial support resulting from the alien's separation from the abuser.

4. The benefits are needed because the battery or cruelty, separation from the abuser, or work absences or lower job performance resulting from the battery or extreme cruelty or from legal proceedings relating thereto (including resulting child support, child custody, and divorce actions), cause the alien to lose his or her job or to earn less or to require the alien to leave his or her job for safety reasons.

5. The benefits are needed because the alien requires medical attention or mental health counseling, or has become disabled, as a result of the battery or extreme cruelty.

6. The benefits are needed because the loss of a dwelling or source of income or fear of the abuser following separation from the abuser jeopardizes the alien's ability to care for his or her children (e.g., inability to house, feed, or clothe children or to put children into day care for fear of being found by the abuser).

7. The benefits are needed to alleviate nutritional risk or need resulting from the abuse or following separation from the abuser.

8. The benefits are needed to provide medical care during a pregnancy resulting from the abuser's sexual assault or abuse of, or relationship with, the alien and/or to care for any resulting children.

9. Where medical coverage and/or health care services are needed to replace medical coverage or health care services the alien had when living with the abuser.

(C) The alien has a petition that has been approved or has a petition pending which sets forth a prima facie case for:

1. Status as a spouse or child of a United States citizen pursuant to clause (ii), (iii), or (iv) of Section 204(a)(1)(A) of the INA [8 U.S.C. section 1154(a)(1)(A)(ii), (iii) or (iv)].

2. Classification pursuant to clause (ii) or (iii) of Section 204(a)(1)(B) of the INA [8 U.S.C. section 1154(a)(1)(B)(ii) or (iii)].

3. Suspension of deportation and adjustment of status pursuant to Section 244(a)(3) of the INA [8 U.S.C. section 1254(a)(3)], as in effect prior to April 1, 1997 [Pub.L. 104–208, sec. 501 (effective Sept. 30, 1996, pursuant to sec. 591); Pub.L. 104–208, sec. 304 (effective April 1, 1997, pursuant to sec. 309) Pub.L. 105–33, sec. 5581 (effective pursuant to sec. 5582)] (incorrectly codified as "cancellation of removal under Section 240A of such act (8 U.S.C. Section 1229b) as in effect prior to April 1, 1997").

4. Status as a spouse or child of a United States citizen pursuant to clause (i) of Section 204(a)(1)(A) of the INA [8 U.S.C. section 1154(a)(1)(A)] or classification pursuant to clause (i) of Section 204(a)(1)(B) of the INA [8 U.S.C. section 1154(a)(1)(B)(i)].

5. Cancellation of removal pursuant to Section 240A(b)(2) of the INA (8 U.S.C. Section 1229(b)(2)).

(D) For the period for which benefits are sought, the individual responsible for the battery or cruelty does not reside in the same household or family eligibility unit as the individual subjected to the battery or cruelty.

(9) An alien who meets all of the conditions of subparagraphs (A), (B), (C), (D) and (E) below:

(A) The alien has a child who has been battered or subjected to extreme cruelty in the United States by a spouse or a parent of the alien (without the active participation of the alien in the battery or cruelty), or by a member of the spouse's or parent's family residing in the same household as the alien, and the spouse or parent consented or acquiesced to such battery or cruelty. For purposes of this subsection, the term "battered or subjected to extreme cruelty" includes, but is not limited to being the victim of any act or threatened act of violence including any forceful detention, which results or threatens to result in physical or mental injury. Rape, molestation, incest (if the victim is a minor), or forced prostitution shall be considered as acts of violence.

(B) The alien did not actively participate in such battery or cruelty.

(C) There is a substantial connection between such battery or cruelty and the need for benefits to be provided in the opinion of the Division. For purposes of this subsection, the following circumstances demonstrate a substantial connection between the battery or cruelty and the need for the benefits to be provided:

1. The benefits are needed to enable the alien's child to become self–sufficient following separation from the abuser.

2. The benefits are needed to enable the alien's child to escape the abuser and/or the community in which the abuser lives, or to ensure the safety of the alien's child from the abuser.

3. The benefits are needed due to a loss of financial support resulting from the alien's child's separation from the abuser.

4. The benefits are needed because the battery or cruelty, separation from the abuser, or work absences or lower job performance resulting from the battery or extreme cruelty or from legal proceedings relating thereto (including resulting child support, child custody, and divorce actions) cause the alien's child to lose his or her job or to earn less or to require the alien's child to leave his or her job for safety reasons.

5. The benefits are needed because the alien's child requires medical attention or mental health counseling, or has become disabled, as a result of the battery or extreme cruelty.

6. The benefits are needed because the loss of a dwelling or source of income or fear of the abuser following separation from the abuser jeopardizes the alien's child's ability to care for his or her children (e.g., inability to house, feed, or clothe children or to put children into day care for fear of being found by the abuser).

7. The benefits are needed to alleviate nutritional risk or need resulting from the abuse or following separation from the abuser.

8. The benefits are needed to provide medical care during a pregnancy resulting from the abuser's sexual assault or abuse of, or relationship with, the alien's child and/or to care for any resulting children.

9. Where medical coverage and/or health care services are needed to replace medical coverage or health care services the alien's child had when living with the abuser.

(D) The alien meets the requirements of subsection (c)(8)(C) above.

(E) For the period for which benefits are sought, the individual responsible for the battery or cruelty does not reside in the same household or family eligibility unit as the individual subjected to the battery or cruelty.

(10) An alien child who meets all of the conditions of subparagraphs (A), (B), and (C) below:

(A) The alien child resides in the same household as a parent who has been battered or subjected to extreme cruelty in the United States by that parent's spouse or by a member of the spouse's family residing in the same household as the parent and the spouse consented or acquiesced to such battery or cruelty. For purposes of this subsection, the term "battered or subjected to extreme cruelty" includes, but is not limited to being the victim of any act or threatened act of violence including any forceful detention, which results or threatens to result in physical or mental injury. Rape, molestation, incest (if the victim is a minor), or forced prostitution shall be considered acts of violence.

(B) There is a substantial connection between such battery or cruelty and the need for the benefits to be provided in the opinion of the Division. For purposes of this subsection, the following circumstances demonstrate a substantial connection between the battery or cruelty and the need for the benefits to be provided:

1. The benefits are needed to enable the alien child's parent to become self–sufficient following separation from the abuser.

2. The benefits are needed to enable the alien child's parent to escape the abuser and/or the community in which the abuser lives, or to ensure the safety of the alien child's parent from the abuser.

3. The benefits are needed due to a loss of financial support resulting from the alien child's parent's separation from the abuser.

4. The benefits are needed because the battery or cruelty, separation from the abuser, or work absences or lower job performance resulting from the battery or extreme cruelty or from legal proceedings relating thereto (including resulting child support, child custody, and divorce actions) cause the alien child's parent to lose his or her job or to earn less or to require the alien child's parent to leave his or her job for safety reasons.

5. The benefits are needed because the alien child's parent requires medical attention or mental health counseling, or has become disabled, as a result of the battery or extreme cruelty.

6. The benefits are needed because the loss of a dwelling or source of income or fear of the abuser following separation from the abuser jeopardizes the alien child's parent's ability to care for his or her children (e.g., inability to house, feed, or clothe children or to put children into a day care for fear of being found by the abuser).

7. The benefits are needed to alleviate nutritional risk or need resulting from the abuse or following separation from the abuser.

8. The benefits are needed to provide medical care during a pregnancy resulting from the abuser's sexual assault or abuse of, or relationship with the alien child's parent and/or to care for any resulting children.

9. Where medical coverage and/or health care services are needed to replace medical coverage or health care services the alien child's parent had when living with the abuser.

(c) The alien child meets the requirements of Subsection (c)(8)(C).

(d) For purposes of this section, "nonimmigrant" is defined the same as in Section 101(a)(15) of the INA [8 U.S.C. section 1101(a)(15)].

(e) For purposes of establishing eligibility for benefits, as described in subsection (b)(1)–(b)(6), all of the following must be met:

(1) The applicant shall declare himself or herself to be a citizen of the United States or a qualified alien under subsection (c), a nonimmigrant

alien under subsection (d), or an alien paroled into the United States for less than one year under Section 212(d)(5) of the INA [8 U.S.C. section 1182(d)(5)]. The applicant shall declare that status through use of the "Statement of Citizenship, Alienage, and Immigration Status for State Public Benefits," Cal/OSHA-W-1 issued on April 30, 1998, incorporated herein by reference.

(2) The applicant shall present documents of a type acceptable to the Immigration and Naturalization Service (INS) which serve as reasonable evidence of the applicant's declared status.

(3) The applicant shall complete and sign a Cal/OSHA-W-1 issued on April 30, 1998, incorporated herein by reference.

(4) Where authorized by the INS, the documentation presented by an alien as reasonable evidence of the alien's declared immigration status must be submitted to the INS for verification through the Systematic Alien Verification for Entitlements (SAVE) system procedures as follows:

(A) Unless the primary SAVE system is unavailable for use, the primary SAVE system verification shall be used to access the biographical/immigration status computer record contained in the Alien Status Verification Index maintained by the INS. Except as provided in the next paragraph [(subparagraph (B)], this procedure shall be used to verify the status of all aliens who claim to be qualified aliens and who present an INS-issued document that contains an alien registration or alien admission number.

(B) In any of the following cases, the secondary SAVE system verification procedure shall be used to forward copies of original INS documents evidencing an alien's status as a qualified alien, as a nonimmigrant alien under the INA, or as an alien paroled into the United States under Section 212(d)(5) of the INS [8 U.S.C. section 1182(d)(5)], for less than one year:

1. The primary SAVE system is unavailable for verification.

2. A primary check of the Alien Status Verification Index instructs the Division to institute secondary verification.

3. The document presented indicates immigration status but does not include an alien registration or alien admission number.

4. The Alien Status Verification Index record includes the alien registration or admission number on the document presented by the alien but does not match other information contained in the document.

5. The document is suspected to be counterfeit or to have been altered.

6. The document includes an alien registration number in the "not yet issued" or "illegal border crossing" series, as defined by the INS.

NOTE: The numbers used by the INS for each series are A60 000 000 and A80 000 000 respectively, as of the date of adoption of this regulation.

7. The document is a fee receipt from INS for replacement of a lost, stolen, or unreadable INS document.

8. The document is one of the following: an INS Form I-181b notification letter issued in connection with an INS Form I-181 Memorandum of Creation of Record of Permanent Residence; an Arrival-Departure Record (INS Form I-94); or a foreign passport stamped "PROCESSED FOR I-551, TEMPORARY EVIDENCE OF LAWFUL PERMANENT RESIDENCE" that INS issued more than one year before the date of application for a benefit described in subsection (b)(1)-(b)(6).

(5) Where verification through the SAVE system is not available, if the documents presented do not on their face reasonably appear to be genuine or to relate to the individual presenting them, the government entity that originally issued the document shall be contacted for verification. With regard to naturalized citizens and derivative citizens presenting certificates of citizenship and aliens, the INS is the appropriate government entity to contact for verification. The Division shall request verification by the INS by filing INS Form G-845 with copies of the pertinent documents provided by the applicant with the local INS office. If the applicant has lost his or her original documents, or presents expired documents or is unable to present any documentation evidencing his or her immigration status, the applicant should be referred to the local INS office to obtain documentation.

(6) If the INS advises that the applicant has citizenship status or immigration status which makes him or her a qualified alien, a nonimmigrant or alien paroled for less than one year under section 212(d)(5) of the INA, the INS verification shall be accepted. If the INS advises that it cannot verify that the applicant has citizenship status or an immigration status that makes him or her a qualified alien, or a nonimmigrant or an alien paroled for less than one year under section 212(d)(5) of the INA, benefits shall be denied and the applicant notified pursuant to subsection (h) or (i) of his or her rights to appeal the denial of benefits.

(7) Provided that the alien has completed and signed form Cal/OSHA-W-1 issued on April 30, 1998, incorporated herein by reference, under penalty of perjury, eligibility for benefits for certification, license or registration, as found in subsection (b)(1)-(b)(6), shall not be delayed, denied, reduced or terminated while the status of the alien is verified.

(f) Pursuant to Section 432(d) of the PRWORA (8 U.S.C. section 1642(d)), a nonprofit charitable organization that provides federal, state, or local public benefits shall not be required to determine, verify, or otherwise require proof of eligibility of any applicant or beneficiary with respect to his or her immigration status or alienage.

(g) Pursuant to Section 434 of the PRWORA (8 U.S.C. section 1644), where the Division reasonably believes that an alien is unlawfully in the State based on the failure of the alien to provide reasonable evidence of the alien's declared status, after an opportunity to do so, said alien shall be reported to the Immigration and Naturalization Service.

(h) Denial of Application.

(1) The Division shall deny issuance of the benefit applied for if the applicant does not meet the requirements of this section. Upon denial of the benefit the Division shall promptly notify the applicant specifying the reason for the denial.

(2) Any applicant denied certification, license or registration by the Division may appeal such denial to the Director. The Director shall hold a hearing at such place designated by the Director or his authorized designee for the convenience of the applicant within two working days of the applicant's appeal. The hearing shall be presided by the Director or his authorized designee.

(3) Following the hearing, the Director shall issue a decision. The Director's decision shall be final except for any rehearing or judicial review provided for by law. All requests for rehearing shall be filed with the Director within 10 days from the date of the Director's decision.

(i) Revocation or Suspension of Certification, License or Registration.

(1) The Division may at any time, upon a showing of good cause and after notice and an opportunity to be heard, revoke or suspend any benefit issued pursuant to this section.

(2) Notice shall be in writing and served upon the recipient of the benefit at least 24 hours in advance of the hearing. Service shall be by personal service or certified mail to the recipient of the benefit to the address as shown on the application form. The notice shall specify the reasons for the action taken by the Division in order that the recipient may prepare for the hearing. The Division shall also include within the notice of revocation or suspension specific conditions which must be met before the recipient of the benefit will be entitled to reapply for the benefit of this section.

(3) The hearing shall be held as soon as possible at the Division's headquarters offices or at such other location as may be designated by the Director and shall be presided by the Chief of the Division or his authorized representative.

(4) At the hearing the Division shall establish good cause for the action taken by it. Good cause is deemed to exist if the Division establishes that the recipient of the benefit has failed to comply with the requirements of this section.

The recipient of the benefit may appeal such revocation or suspension to the Director in the same manner specified in subsection (h). The filing of an appeal shall not stay the revocation or suspension, and such action

shall remain in effect until the benefit recipient provides proof that the requirements of this section have been met.

NOTE: Authority cited: Sections 54, 55, 59 and 60.5, Labor Code. Reference: Sections 6501.5, 7375, 7990 and 7999, Labor Code; Section 7180, Business and Professions Code; and Sections 1621, 1641 and 1642, Title 8, United States Code.

HISTORY

1. New article 14 (section 344.85) and section filed 4–30–98 as an emergency; operative 4–30–98 (Register 98, No. 18). A Certificate of Compliance must be transmitted to OAL by 8–28–98 or emergency language will be repealed by operation of law on the following day.
2. Certificate of Compliance as to 4–30–98 order transmitted to OAL 8–18–98 and filed 9–29–98 (Register 98, No. 40).

## § 344.90. Impalement Protection. Specifications and Testing Criteria (See Construction Safety Orders, Title 8, CCR § 1712).

(a) Scope: This section governs the testing of manufactured protective covers designed to prevent accidental impalement from exposed reinforcing steel (rebar) or other similar projections.

(b) Effective Date: This section applies to all protective covers manufactured on or after October 1, 2000.

(c) All manufactured protective covers used as protection against impalement for workers at grade or the same level as the projection shall:

(1) Pass the drop test described in subsection (e) of this section, except that the drop height may be reduced to 7 1/2′.

(2) Meet all other applicable requirements of section 1712 of this Code.

(d) All manufactured protective covers used as protection against impalement for work performed at levels not to exceed 7 1/2′ above grade shall:

(1) Have a minimum of 4″ by 4″ square surface area, or if round, a minimum diameter of 4 1/2″. Troughs shall be at least 4″ wide.

(2) Pass the drop test specified in subsection (e) of this section.

(3) Meet all other applicable requirements of section 1712 of this Code.

(e) Manufactured protective covers shall be able to pass the following penetration tests, as verified by a person, firm, or entity with appropriate registered–engineering competence, or by a person, firm, or entity, independent of the manufacturer of the subject protective covers, with demonstrated competence in the field of such evaluation.

(1) Protective covers for rebar shall be tested for penetration by dropping a 250–lb. bag of dry sand (less than 10% moisture by weight) onto the subject protective cover from a height of 10′. The 10′ shall be measured from the bottom of the bag to the top of the protective cover.

(A) The sandbag shall be generally round, and shall have a circumference of 36″ to 42″. When filled with 250 lbs. of sand, the bag shall be tightly closed by use of crimping, drawstring, or twisting at the top level of the sand so that there is little extra room in the bag to allow the sand to shift. The bag shall be constructed and reinforced (as necessary) with material, which will not rupture or be penetrated by the protective cover for rebar.

(B) The protective cover for rebar shall be installed over the sheared end of a piece of #4 rebar. The rebar shall be mounted on a support with 6″ of the rebar projecting vertically above the surface of the support. The support shall be of such height and width that it shall not interfere with the falling sandbag, and shall allow the full initial impact of the sandbag to be borne by the protective cover.

(C) The drop test shall be repeated three times, using a new protective cover for each test. One drop test shall be performed with the protective cover sitting squarely on top of the rebar; the other two drop tests shall be performed with the protective cover sitting at the maximum angle out of square (out of level) that the protective cover will permit with its stabilizer vanes/fins removed.

(2) Protective covers for projections or equipment other than rebar, (such as lighting rods,) shall be tested in the same manner as protective covers for rebar, except that protruding equipment which is normally installed with a protective cover as a single unit may be tested as a unit, using the equipment in lieu of the rebar.

(3) Rebar troughs shall be tested for penetration by dropping a 250–lb bag of dry sand (less than 10% moisture by weight) onto the subject trough from a height of 10′. The 10′ shall be measured from the bottom of the bag to the top of the protective cover.

(A) The sandbag shall be generally round, and shall have a circumference of 36″ to 42″. When filled with 250 lbs. of sand, the bag shall be tightly closed by use of crimping, drawstring, or twisting at the top level of the sand so that there is little extra room in the bag to allow the sand to shift. The bag shall be constructed and reinforced (as necessary) with material, which will not rupture or be penetrated by the protective cover for rebar.

(B) The trough shall be installed over the sheared ends of three pieces of #4 rebar. The three pieces rebar shall be mounted in a straight line, 24″ apart, on a support with 6″ of each piece of rebar projecting vertically above the surface of the support. The trough shall be 72″ in length, and shall be centered over the three pieces of rebar so that 12″ of the trough extends beyond each of the outside pieces of rebar.

(C) The drop test shall be repeated four times, using a new trough for each test. The sandbag shall be dropped: (i) once with the trough level and the sandbag centered over the middle piece of rebar; (ii) once with the trough level and the sandbag centered over one of the end pieces of rebar; (iii) once with the trough tilted (at the maximum angle allowed by the design) with the sandbag centered over the middle piece of rebar; (iv) once with the trough tilted (at the maximum angle allowed by the design) with the sandbag centered over one of the end pieces of rebar.

(4) Other methods for penetration testing may be substituted for those set forth in this section where acceptable to the Division as being equally effective.

(f) Each manufacturer, or other person or entity reselling or distributing manufactured protective covers, shall furnish the ultimate user of the protective cover with instructions regarding appropriate use of the protective covers. The instructions, written in English, shall include at least the following:

(1) Instructions as to whether the protective cover is designed for use at grade or above grade.

(2) A statement indicating the maximum height of fall that the cover is designed to protect against impalement, but not to exceed 7 1/2′.

(3) Installation instructions.

(4) Instructions regarding the inspection and/or use of damaged or defective protective covers. The effects, if any, of damaged stabilizer vanes/fins shall be included in this instruction.

(5) Any other instructions deemed necessary by the manufacturer regarding the use of the protective covers.

(g) Each employer whose employees use or work around or above protective covers shall inform its employees of the content of the manufacturer's instructions. Such information shall be provided to employees in a manner that allows them to understand the appropriate use of protective covers and the hazards associated with impalement.

(h) Marking—Each protective cover shall be marked with the following information:

(1) Model Number or Trademark.

(2) California Approval Number as issued pursuant to Sections 1712 and 1505 of this Code.

(3) Size(s) designation.

NOTE: Authority cited: Sections 60.5 and 6308, Labor Code. Reference: Sections 60.5 and 6308, Labor Code.

HISTORY

1. New section filed 6–26–2000; operative 10–1–2000 (Register 2000, No. 26).
2. Change without regulatory effect amending subsection (e) filed 10–16–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 42).

* * *

*Barclays Official*

# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

## Chapter 3.3. Occupational Safety and Health Appeals Board

Vol. 8

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BARCLAYS OFFICIAL CALIFORNIA CODE OF REGULATIONS
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# Chapter 3.3. Occupational Safety and Health Appeals Board

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# Chapter 3.3. Occupational Safety and Health Appeals Board

(Originally Printed 1-12-74)

## Article 1. General

### § 345. Scope and Application of Rules.

These rules of practice and procedure of the Occupational Safety and Health Appeals Board shall govern all appeals, contests, motions, hearings, petitions, and proceedings before the Appeals Board and an Administrative Law Judge of the Appeals Board, arising from actions by the Division of Occupational Safety and Health taken pursuant to Part 1 (commencing with Section 6300) of Division 5 of the Labor Code or Section 2950 of the Health and Safety Code, or for employers' cost recovery pursuant to Section 149.5 of the Labor Code.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Repealer of Article 1 (Sections 345–356.2) and new Article 1 (Sections 345–356.2) filed 6–5–80; effective thirtieth day thereafter (Register 80, No. 23). For prior history, see Registers 76, No. 38; 74, No. 31; 74, No. 18; and Register 74, No. 2.
2. Repealer of former Section 345 and renumbering of former Section 345.1 to Section 345 filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).

### § 346. Tenses, Gender and Number.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Repealer filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).

### § 347. Definitions.

For the purpose of these rules:

(a) "Administrative Law Judge" means any person appointed by the Appeals Board pursuant to Labor Code Sections 6605 and 6607 as a hearing officer to conduct hearings and to decide matters within the jurisdiction of the Appeals Board;

(b) "Affected Employee" means an employee of a cited employer who is exposed to the alleged hazard described in the citation as a result of assigned duties;

(c) "Appeals Board" or "Board" means the Occupational Safety and Health Appeals Board, and includes the chairperson and members of the Appeals Board, administrative law judges, and staff of the Appeals Board;

(d) "Authorized Employee Representative" means a labor organization which has a collective bargaining relationship with the cited employer and which represents affected employees or an employee organization which has been formally acknowledged by a public agency as an employee organization that represents affected employees of the public agency;

(e) "Completed Appeal Form" means all required blanks filled in and boxes checked, with the signature of employer or employer's representative, and citation(s) appealed from attached to the appeal form.

(f) "Day", unless specifically stated otherwise means calendar day.

(g) "Declaration" means a certification in substantially the following form:

(1) If executed within California:

I declare under penalty of perjury that the foregoing is true and correct.

Executed at _____, California on _____,
(City) (Date)

(Signature) _____
(Typed or printed name)

(2) If executed outside California:

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

_____ (Signature) _____
(Date) (Typed or printed name)

(h) "Division" means the Division of Occupational Safety and Health;

(i) "Division Action" means any citation, notice, special order, order to take special action, notification of penalty, notification of failure to abate alleged violation and of additional civil penalty, or notification of failure to return a signed statement of abatement issued by the Division pursuant to Part 1 (commencing with Section 6300) of Division 5 of the Labor Code or Section 2950 of the Health and Safety Code, which by statute may be appealed to the Appeals Board;

(j) "Docketed Appeal" means any completed appeal form which has been received by the Appeals Board and assigned a specific docket number;

(k) "Employee" means every person who is required or directed by any employer, to engage in any employment, or to go to work or be at any time in any place of employment;

(*l*) "Employee Appeal" means any appeal filed by an employee from the period allowed by the Division to abate the alleged violation;

(m) "Employer" means the state and every state agency, each county, city, district, and all public and quasi-public corporations and public agencies therein, every person including any public service corporation, which has any natural person in service, and the legal representative of any deceased employer;

(n) "Hearing" means any hearing before the Appeals Board or an Administrative Law Judge set for the purpose of receiving evidence;

(o) "Hearing Record" means the official record of evidence taken by electronic device in any proceeding before the Appeals Board;

(p) "Intervenor" means a person, group of persons, trade association, legal foundation, or public or private interest group who has been granted leave to intervene in any proceeding;

(q) "Memorandum of Items of Costs" means an itemization of costs claimed pursuant to Section 149.5 of the Labor Code;

(r) "Obligor" means a person other than an employer who is obligated to an employer to repair any machine, device, apparatus, or equipment and to pay any penalties assessed against an employer;

(s) "Participation Notice" means a notice informing affected employees of their right to participate in certain proceedings;

(t) "Party" means a person who has made an appearance before the Appeals Board and been granted party status;

(u) "Person" means an individual, firm, partnership, trust, estate, association, corporation, company, or other entity.

(v) "Petition for Costs" means any claim for reasonable costs to be awarded by the Appeals Board pursuant to Section 149.5 of the Labor Code;

(w) "Proceeding" means any adjudicatory action begun by the filing of an appeal and includes a hearing, prehearing conference, petition for costs, reconsideration, or any other act that may result in an order or decision of the Appeals Board;

(x) "Representative" means a person authorized by a party or intervenor to represent that party or intervenor in a proceeding;

(y) "Rule" means any section set forth in this chapter adopted by the Appeals Board;

(z) "Working Days" means any day that is not a Saturday, Sunday or State-recognized holiday as provided in Government Code Sections 6700 and 6701.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 2015.5, Code of Civil Procedure; Sections 148.7, 149.5, 6301, 6302, 6304, 6304.1 and 6305(b), Labor Code.

HISTORY

1. Amendment filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Amendment of subsections (f) and (g) filed 8–14–85; effective thirtieth day thereafter (Register 85, No. 33).
3. Change without regulatory effect of subsections (b) and (t) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).

4. New subsections (e)–(e)(1) and relettering, amendment of subsections (g), (h) and (k), new subsection (s) and relettering, and amendment of subsection (u) and NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
5. Amendment of subsection (c), new subsections (e)–(f) and subsection relettering filed 11–26–2007; operative 12–26–2007 (Register 2007, No. 48).

### § 347.1. Appendices.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Repealer filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).

### § 348. Computation of Time.

(a) In computing the time within which a right may be exercised or an act is to be performed, the first day shall be excluded and the last day shall be included. If the last day is not a working day, time shall be extended to the next working day.

(b) Unless otherwise indicated by proof of service, if the envelope was properly addressed, the mailing date shall be presumed to be:

(1) the postmark date appearing on the envelope if first–class postage was prepaid; or

(2) the date of delivery to a common carrier promising overnight delivery as shown on the carrier's receipt.

(c) Where service of any document, letter, application, request, motion, pleading, brief, decision, petition, answer, memorandum, response, or other writing is by mail, and if within a given number of days after such service, a right may be exercised, or an act is to be performed, the time within which such right may be exercised or act performed is extended five days if the place of address is within the State of California, and 10 days if the place of address is outside the State of California but within the United States. Such extension shall not apply to extend the time for filing an appeal.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 1013(a), Code of Civil Procedure; and Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Amendment filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Change without regulatory effect of subsection (b) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
3. Amendment of subsection (b), new subsection (b)(1) created from text of subsection (b), new subsection (b)(2), and amendment of subsection (c) and NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 349. Late Filing.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 149.5 and 6601, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Repealer of text and amendment of NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 350. Administrative Law Judge's Oath.

(a) Before entering upon judicial duties, each Administrative Law Judge shall take the following oath or affirmation and sign a written copy: "I do solemnly swear (or affirm) that I will faithfully and fairly hear and determine matters and issues referred to me, to make just findings and to report according to my understanding."

(b) The oath of affirmation taken by an Administrative Law Judge shall apply to all subsequent official actions taken in that capacity and need not be repeated for each matter or proceeding.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7, 149.5 and 6607, Labor Code.

HISTORY

1. Change without regulatory effect filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).

### § 350.1. Authority of Administrative Law Judges.

(a) In any proceeding assigned for hearing and decision under the provisions of Labor Code Sections 6604 and 6605, an Administrative Law Judge shall have full power, jurisdiction and authority to hold a hearing and ascertain facts for the information of the Appeals Board, to hold a prehearing conference, to hold a settlement conference, to issue a subpoena and subpoena duces tecum for the attendance of a person and the production of testimony, books, documents, or other things, to compel the attendance of a person residing anywhere in the state, to certify official acts, to regulate the course of a hearing, to grant a withdrawal, disposition or amendment, to order a continuance, to approve a stipulation voluntarily entered into by the parties, to administer oaths and affirmations, to rule on objections, privileges, defenses, and the receipt of relevant and material evidence, to call and examine a party or witness and introduce into the hearing record documentary or other evidence, to request a party at any time to state the respective position or supporting theory concerning any fact or issue in the proceeding, to extend the submittal date of any proceeding, to hear and determine all issues of fact and law presented and to issue such interlocutory and final orders, findings, and decisions as may be necessary for the full adjudication of the matter, or take other action during the pendency of a proceeding to regulate the course of a prehearing, hearing, or settlement conference, that is deemed appropriate by the Administrative Law Judge to further the purposes of the California Occupational Safety and Health Act. Final orders, findings, and decisions issued by an Administrative Law Judge shall be the orders, findings, and decisions of the Appeals Board unless reconsideration is granted.

(b) In any proceeding which has been assigned for hearing and preparation of a proposed decision pursuant to Section 6604(b), an Administrative Law Judge shall have the same power, jurisdiction, and authority as set forth in subdivision (a) above except that a proposed decision shall be prepared in such form that it may be adopted by the Appeals Board as the decision in the matter.

NOTE: Authority cited: Sections 148.7, 149.5, 6604 and 6605, Labor Code. Reference: Section 11182, Government Code; and Sections 148.7, 148.8, 149.5, 6604, 6605 and 6607, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Change without regulatory effect filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
3. Amendment of subsection (a) filed 11–26–2007; operative 12–26–2007 (Register 2007, No. 48).

### § 350.2. Authority of Executive Officer and Chief Counsel.

The Executive Officer and the Chief Counsel shall have full power, jurisdiction and authority to issue a subpoena and subpoena duces tecum for the attendance of a person and the production of testimony, books, documents, or other things, to compel the attendance of a person residing anywhere in the State, to certify official acts, to grant a withdrawal, disposition or amendment, and to issue such other orders as may be necessary for the full adjudication of the matter. Final orders issued by the Executive Officer or the Chief Counsel shall be the orders of the Appeals Board unless reconsideration is granted.

NOTE: Authority cited: Sections 148.7, 149.5 and 6604, Labor Code. Reference: Section 11182, Government Code; and Sections 148.7, 148.8, 149.5 and 6604, Labor Code.

HISTORY

1. New Section filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).

### § 351. Records of the Appeals Board.

(a) Except where public disclosure of information or exhibits is restricted by law, records of the Appeals Board are public records and are available at its Principal Office in Sacramento, California, for inspection and copying between 8:00 a.m. and 12:00 noon and between 1:00 p.m. and 4:00 p.m. on any working day.

(b) Persons requesting copies of papers, records, or documents are encouraged to employ an independent copy service. However, the Appeals Board will copy and forward papers, records, or documents as its working conditions permit and upon payment of costs, fees, and applicable sales tax.

(c) No costs or fees will be charged for records furnished to California State Agencies.

(d) Payment of costs, fees, and sales tax must accompany the request by check or money order made payable to the Department of Industrial Relations.

(e) Unless otherwise required, compliance by the Appeals Board with a subpoena duces tecum from a court of record, administrative board or commission, hearing officer or other body conducting a legal or administrative proceeding will be pursuant to Article 4 (commencing with Section 1560) of the Evidence Code.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7, 149.5, 6314(a) and 6322, Labor Code.

HISTORY

1. Amendment of subsection (b) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).

### § 352. Ex Parte Communication.

(a) Except as provided in subsection (b), a person shall not communicate with Appeals Board Members or Administrative Law Judges of the Appeals Board regarding a proceeding.

(b) The following communications are permitted:

(1) Written communications, if copies of them are contemporaneously served by the communicator on all parties to a proceeding in accordance with Sections 355(c) and 355(e);

(2) Oral communications, if advance notice of them is given by the communicator to all parties to a proceeding and adequate opportunity is afforded to all parties to participate in the communication;

(3) Oral or written requests for information related solely to the procedure of the Appeals Board or status of a proceeding;

(4) Oral or written communications which all the parties to a proceeding have agreed may be made on an ex parte basis;

(5) Oral or written communications proposing settlement, or an agreement for disposition of any or all issues in a proceeding; and

(6) Oral or written communications concerning a proceeding, if made more than 30 days after service by the Appeals Board of a final order or decision in that proceeding.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Amendment of subsection (b) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Repealer and new text and amendment of NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
3. Amendment of subsection (a) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 353. Service, Notice and Posting.

NOTE: Authority cited: Section 148.7 and 149.5, Labor Code. Reference: Sections 148.7, 149.5 and 6610, Labor Code.

HISTORY

1. Amendment of subsections (g) and (h) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Renumbering and amendment of former section 353 to section 355 filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 354. Party Status.

(a) The Division is a party to all proceedings before the Appeals Board, whether or not the Division has appeared or participated in a proceeding.

(b) An affected employee or authorized representative of an affected employee may move to participate as a party to a proceeding by filing a motion in accordance with Section 371.

(c) Affected employees or authorized representatives of affected employees shall not participate as parties to employers' cost recovery proceedings pursuant to Section 149.5 of the Labor Code.

(d) When an Employee Appeal is filed alleging the unreasonableness of the period allowed by the Division to abate an alleged violation, the employer charged with the responsibility of abating the violation is a party to the proceeding.

(e) An obligor may move to participate as a party to a proceeding by filing a motion in accordance with Section 371.

(f) When an obligor appeal is filed from actions taken by the Division, the employer charged may move to participate as a party at any time prior to the beginning of a hearing.

(g) An obligor shall not participate as a party to employers' cost recovery proceedings pursuant to Section 149.5 of the Labor Code.

(h) A person whose motion for party status has been granted by the Appeals Board becomes a party to the proceeding and is entitled to service of all documents and notices. Each party shall serve within 10 working days of the order granting party status, copies of all documents previously filed with the Appeals Board and not served on the new party. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Sections 148.7, 6319(b), 6600 and 6603(a), Labor Code.

HISTORY

1. Amendment of subsections (b) and (c) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Amendment of subsections (b), (e), (h), and NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
3. Amendment of subsection (h) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 354.1. Intervention.

(a) A person may move to participate as an intervenor in any proceeding by filing a motion in accordance with Section 371. Such participation shall be limited to the terms prescribed in the order of the Appeals Board.

(b) The motion to intervene shall set forth the interest of the moving party in the proceeding and how that interest is similar to that of a party, how the participation of the moving party will assist in the determination of the issues before the Appeals Board, and that intervention will not unnecessarily delay the proceeding.

(c) A person whose motion for intervention has been granted by the Appeals Board is entitled to service of all documents and notices to which parties are entitled and to participate in hearings and prehearing conferences to the extent consistent with the terms prescribed in the order of the Appeals Board granting intervention. An intervenor shall bear the costs of copying documents previously filed with the Appeals Board.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 148.7, Labor Code.

HISTORY

1. Change without regulatory effect of subsection (c) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
2. Amendment of subsection (a) and NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
3. Amendment of subsections (b) and (c) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

## Article 1.5. Service of Documents and Duty to Notify Others of Appeal and Hearing

### § 355. Proper Method of Service & Official Address of Record.

(a) The Appeals Board shall maintain in each proceeding an official address record which shall contain the names and addresses of all parties and intervenors and their representatives. Documents sent by the Appeals Board to the official address of record for the employer that are returned or undeliverable may result in dismissal of the appeal if the Appeals Board is unable to effectively communicate with the employer.

(b) Any change or substitution in the name–and address of any party or intervenor, or its representative, must be communicated, in writing, promptly, and in no case more than 30 days after the change, to the Appeals Board's Sacramento office. The written communication must also be served on all parties and intervenors. Failure to communicate changes or substitutions promptly in writing by the employer may result in dismissal of the appeal if the Appeals Board is unable to effectively communicate with the employer.

(c) Service on a party or intervenor who has appeared through a representative shall be made upon such representative.

(d) Unless otherwise required, service may be made by personal delivery or by depositing the document in a post office, mailbox or mail chute, or other like facility regularly maintained by the United States Postal Service, sealed, properly addressed, with first–class postage prepaid, by deposit with a carrier guaranteeing overnight delivery, or by facsimile ("FAX") machine, as provided in subsections (i) and (j) below.

(e) Service is complete at the time of personal delivery or mailing.

(f) Proof of service shall be filed with the document and may be made by any of the following means:

(1) Affidavit or declaration of service by personal delivery, mail, overnight courier or FAX;

(2) Written statement endorsed upon the document served and signed by the party making the statement; or

(3) Letter of transmittal.

(g) Proof of service by the Appeals Board may be made by endorsement on the document served, setting forth the fact of service on the persons listed on the official address record on the date of service. The endorsement shall state whether such service was made personally, by mail, overnight courier or FAX, the date of service and the signature of the person making the service.

(h) Where service is made by the posting of a document, citation, notice, order or decision, proof or certification of such posting shall be filed with the issuing office of the Division not later than the second working day following the posting.

(i) The Appeals Board may serve documents on parties and parties may file documents with the Appeals Board and serve them on other parties by means of FAX under the following conditions:

(1) The length of the document to be filed and/or served shall be no more than twelve (12) pages including cover page and attachments;

(2) A cover sheet shall be attached containing the number of pages transmitted, the FAX number of the sender, the sender's telephone number, and the name of a contact person;

(3) If a document is filed by FAX, all parties shall be served in the same manner or by guaranteed overnight delivery. The FAX transmission shall include a proof of service indicating the method of service on each party.

(j) A document is considered received on the following working day if transmission begins later than 5:00 p.m. Pacific Time.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 149.5 and 6610, Labor Code.

HISTORY

1. New article heading and renumbering and amendment of former section 353 to section 355 filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
2. Amendment of section, including renumbering and amendment of former section 355.1 to new subsections (h)–(i), and amendment of NOTE filed 8–16–99; operative 9–15–99 (Register 99, No. 34).
3. Amendment of section heading and subsection (a), new subsection (b), subsection relettering and amendment of newly designated subsection (d) filed 11–26–2007; operative 12–26–2007 (Register 2007, No. 48).

### § 355.1. Use of Facsimile Machines.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 148.7, Labor Code.

HISTORY

1. New section filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
2. Renumbering of former section 355.1 to new subsections 355(h)–(i) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 356. Notice to Employees of Appeal and Hearing.

(a) The employer shall give notice of an appeal to its employees by posting the docketed Appeal Form, Participation Notice, and Notice of Hearing at or near the site of the alleged violation, positioned so as to be easily read by employees working in the area. If it is not practicable to post the document at or near the site of the alleged violation, the document may be posted in a conspicuous place where it will be readily observable by employees, or at a location to which employees report each day, or at a location from which employees operate to carry out their duties. The docketed Appeal Form, Participation Notice, and Notice of Hearing shall be posted immediately upon receipt from the Appeals Board and shall remain posted until the date of the hearing or receipt of an order disposing of the appeal.

(b) Service of the docketed Appeal Form, Participation Notice, and Notice of Hearing is required, in addition to posting, under the following circumstances:

(1) If affected employees are represented by an authorized employee representative, service in a manner prescribed in Section 355(c) shall be made upon the representative.

(2) If an employee sustained a serious injury or illness, or was killed, as a result of an alleged violation that is being appealed, service in the manner prescribed in Section 355(c) shall be made upon the employee or the representative of the deceased employee.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 6603(a), Labor Code.

HISTORY

1. Amendment of section heading and subsection (a) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Amendment of subsections (a), (c) and (d) filed 8–14–85; effective thirtieth day thereafter (Register 85, No. 33).
3. Renumbering and amendment of former section 356 to section 356.1 and new section filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 356.1. Form of Participation Notice.

(a) The Participation Notice required by Section 356 shall be in the following form:

"Your employer, (name of employer), has been cited by the California Division of Occupational Safety and Health for violation of an Occupational Safety and Health standard. The citation and/or civil penalty has been contested and will be the subject of a hearing before the Occupational Safety and Health Appeals Board. Affected employees are entitled to participate in this hearing as parties under terms and conditions established by the Occupational Safety and Health Appeals Board in its rules of practice and procedure by filing a motion for party status. The motion for party status shall be sent to the Occupational Safety and Health Appeals Board, at the Appeals Board's principal office in Sacramento, California, and shall be accompanied by a proof of service and shall indicate that it was served on the Division and Employer and any other parties as provided in Section 355.

"All papers filed relative to this matter may be inspected at: (A place reasonably convenient to employees, preferably at or near work place.)"

Where appropriate, the second sentence of the above notice will be deleted and the following sentence will be substituted:

"The reasonableness of the period prescribed by the Division of Occupational Safety and Health for abatement of the violation has been contested and will be the subject of a hearing before the Occupational Safety and Health Appeals Board."

(b) For a special order or an order to take special action, the first two sentences of the above notice will be deleted and the following sentences will be substituted:

"Your employer, (name of employer), has been issued an order by the California Division of Occupational Safety and Health. The order has been contested and will be the subject of a hearing before the Occupational Safety and Health Appeals Board."

(c) An employer shall file with the issuing office of the Division, not later than the second working day following the service or posting, proof or certification of service or posting of the docketed Appeal and Participation Notice.

(d) This section and Section 356 do not apply to appeals from citations issued pursuant to Section 2950 of the Health and Safety Code.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Sections 148.7, 6602 and 6603(a), Labor Code.

HISTORY

1. Repealer of former section 356.1 and renumbering and amendment of former section 356 to section 356.1 filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
2. Change without regulatory effect amending subsection (a) filed 3–17–98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 12).
3. Amendment of subsection (a) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 356.2. Responsibility of Employee to Notify Employer and Other Employees of Proceeding.

(a) When an Employee Appeal is filed by an employee, a copy of the docketed Employee Appeal shall be forwarded by the Appeals Board to the employer.

(b) The employer shall post both a copy of the docketed Employee Appeal and a copy of the Participation Notice. Posting shall be in a manner as prescribed in Section 356(a). The form of the participation notice shall follow the format of section 356.1.

(c) When an Employee Appeal is filed by an employee and there are other employees who are represented by an authorized employee representative, the employee shall, upon receipt of the docketed Employee Appeal and the statement by the Division required by Section 361(e) relating to the reasonableness of the abatement period, serve a copy of the Employee Appeal, the Participation Notice, and the statement on the authorized employee representative. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

(d) An authorized employee representative who files an Employee Appeal shall serve a copy of the docketed Employee Appeal upon any other authorized employee representative whose members are affected employees.

(e) Where posting is required by this rule, such posting shall be maintained until the commencement of the hearing or until earlier disposition of the proceeding.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Sections 148.7 and 6603(a), Labor Code.

HISTORY

1. Amendment of subsections (b) and (c), repealer of subsection (e) and relettering, repealer of subsection (g), and amendment of NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 359. Filing of Appeal.

(a) Except as provided in Section 361.1(b), an appeal shall be deemed filed on the date a communication indicating a desire to appeal the Division action is hand delivered, mailed to, or received by the Appeals Board in Sacramento, California, whichever is earlier. No particular format is necessary to institute the appeal. Communications to the Division of Occupational Safety & Health indicating a desire to appeal are not deemed filed with the Appeals Board and do not initiate the appeal.

(b) The time for filing any appeal may be extended or a late filing permitted upon a written showing of good cause that contains sufficient facts to show or establish a reasonable basis for the late filing.

(c) A request to file a late appeal shall be accompanied by a declaration containing a statement that any facts therein are based upon the personal knowledge of the declarant.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7 and 6601, Labor Code.

HISTORY

1. Amendment filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Amendment of section heading and subsections (a) and (b) and new subsection (c) filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
3. Amendment of section heading and subsection (a) filed 11–26–2007; operative 12–26–2007 (Register 2007, No. 48).

### § 359.1. Appeal Form.

(a) A completed appeal form shall be filed for each contested Division action.

(b) If an appeal is initiated by other than an appeal form, a completed appeal form shall be filed with the Appeals Board within 10 days of the Appeals Board's written acknowledgement by the Appeals Board of the desire to appeal. Failure to file a completed appeal form with the Appeals Board within 10 days of written acknowledgement by the Board of the intent to appeal constitutes grounds for dismissal.

(c) The Appeals Board shall furnish appeal forms upon request and shall provide them to the district offices of the Division.

(d) Upon receipt of a timely completed appeal form, the Appeals Board shall assign a docket number and deliver or mail a copy of the docketed appeal to each party.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 148.7, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Amendment filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
3. Amendment of subsection (b) filed 11–26–2007; operative 12–26–2007 (Register 2007, No. 48).

### § 359.2. Issues on Appeal.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 6317, 6319.5 and 6601, Labor Code.

HISTORY

1. New subsection (d) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Amendment of subsection (b) filed 8–14–85; effective thirtieth day thereafter (Register 85, No. 33).
3. Amendment of subsections (b) and (c) filed 4–24–86; effective thirtieth day thereafter (Register 86, No. 17).
4. Renumbering and amendment of former section 359.2 to section 361.3 filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 360. Stay of Abatement Period and Abatement Changes.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 148.7, Labor Code.

HISTORY

1. Renumbering and amendment of former section 360 to section 362 filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 361. Employer Appeal.

(a) An employer may appeal to the Appeals Board any Division citation or penalty for any ground set forth in Labor Code Section 6600.

(b) An employer may appeal to the Appeals Board a special order or order to take special action for any ground set forth in Labor Code Section 6600.5.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 6319(b) and 6600–6602, Labor Code.

HISTORY

1. Amendment of subsections (c) and (d) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Amendment of subsection (a) filed 8–14–85; effective thirtieth day thereafter (Register 85, No. 33).
3. Change without regulatory effect of subsection (a) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
4. Renumbering of former section 361 to section 361.1, renumbering of former section 361.2 to section 361 with repealer of text, and new text filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 361.1. Employee Appeal.

(a) An employee or authorized employee's representative may, within 15 working days of the issuance of a citation, special order, or order to take special action, appeal to the Appeals Board the reasonableness of the period of time fixed by the Division for abatement.

(b) An Employee Appeal may be filed with the Division or the Appeals Board. No particular format is necessary to institute the appeal, but the notice of appeal must be in writing.

(c) If an Employee Appeal is filed with the Division, the Division shall note on the face of the document the date of receipt, include any envelope or other proof of the date of mailing, and promptly transmit the document to the Appeals Board.

(d) The Division shall, no later than 10 working days from receipt of the Employee Appeal, file with the Appeals Board and serve on each party a clear and concise statement of the reasons why the abatement period prescribed by it is reasonable.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Sections 148.7 and 6602, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 8–14–85; effective thirtieth day thereafter (Register 85, No. 33).
2. Change without regulatory effect of subsection (c) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
3. Renumbering of former section 361.1 to section 361.2, renumbering and amendment of former section 361 to section 361.1 filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 361.2. Appeal by Persons Obligated to Employer.

(a) An obligor may appeal to the Appeals Board a citation alleging a violation involving any machine, device, apparatus, or equipment to which the obligation applies, for any ground set forth in Labor Code Section 6600.

(b) An obligor may appeal to the Appeals Board a special order or order to take special action ordering changes to any machine, device, apparatus, or equipment to which the obligation applies, for any ground set forth in Labor Code Section 6600.5.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 6319(b) and 6600–6602, Labor Code.

HISTORY

1. Amendment of subsections (a) and (c) filed 8–14–85; effective thirtieth day thereafter (Register 85, No. 33).
2. Change without regulatory effect of subsection (c) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
3. Renumbering of former section 361.2 to section 361, renumbering of former section 361.1 to section 361.2 with repealer of text, and new text filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 361.3. Issues on Appeal.

The issues on appeal shall be limited to those set forth in the Division action that is contested by a docketed appeal, subject to the following limitations:

(a) If the Division action appealed from is a citation, the employer must specify on the appeal form which one or more of the following issues it is raising in its appeal;

(1) The existence of the violation alleged in the underlying citation;

(2) The classification of the violation;

(3) The abatement period;

(4) The reasonableness of the changes required by the Division to abate the violation; or

(5) Only the reasonableness of the proposed penalty.

If the appeal contests only the reasonableness of the proposed penalty, the issues on appeal shall be limited to the classification of the violation and the reasonableness of the proposed penalty, unless a timely motion pursuant to Section 371 is granted to amend the appeal to contest the existence of the violation, the abatement period, or the reasonableness of the changes required by the Division to abate the violation.

(b) If a citation is classified as a repeat violation pursuant to Section 334(d), the earlier citation established by failure to appeal or the entry of a final disposition by the Appeals Board shall not be in issue and shall not be a docketed appeal.

(c) If an employer files a timely appeal from a notification of failure to abate but did not file an appeal from the underlying citation, the existence of the alleged violation shall be an issue in the same hearing if the employer files a motion, in accordance with Section 371, demonstrating good cause for having not appealed the underlying citation.

(d) If the Division amends a citation for the sole purpose of revoking an abatement credit, the employer may appeal the revocation within 15 working days from receipt of the amended citation. The amendment shall not give the Appeals Board jurisdiction over any other issue.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 6317, 6319.5 and 6601, Labor Code.

HISTORY

1. Renumbering and amendment of former section 359.2 to section 361.3 filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
2. Amendment of first paragraph, repealer of subsection (a) and new subsections (a)(1)–(5) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 362. Stay of Abatement Period and Abatement Changes.

Unless otherwise provided by statute, all abatement periods and changes required by the Division are stayed upon the filing of a docketed appeal with the Appeals Board and remain stayed until withdrawal of the appeal or a final disposition of the proceeding by the Appeals Board.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 148.7, Labor Code.

HISTORY

1. Renumbering and amendment of former section 360 to section 362 filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 363. Consolidation and Severance.

(a) The Appeals Board may consolidate for hearing and decision any number of proceedings involving the same employer.

(b) Upon motion of a party or upon its own motion, the Appeals Board may consolidate for hearing and decision any number of proceedings involving different employers where the facts and circumstances are similar and consolidation will result in conservation of time and expense. Any party may object to consolidation in writing within 10 days of the date of service of the order of consolidation.

(c) Consolidated proceedings may be severed by the Appeals Board for good cause.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 148.7, Labor Code.

HISTORY

1. Amendment filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 364. Withdrawal of Appeal.

(a) An appellant may withdraw an appeal by written notification at any time before a decision is issued or by oral motion on the hearing record. The Appeals Board shall grant such withdrawal by letter, order or decision served on the parties.

(b) An appeal so dismissed shall be reinstated by the Appeals Board if the appellant files a written motion with sufficient facts to show that the withdrawal resulted from misinformation given by the Division or the Appeals Board, or from fraud or coercion. A motion for reinstatement must be filed within 60 days of service of the letter, order or decision or, in the event of fraud which could not have been suspected or discovered with the exercise of reasonable diligence, within 60 days of discovery of such fraud. The motion shall be accompanied by a declaration containing a statement that any facts therein are based upon the personal knowledge of the declarant.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 148.7, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Amendment filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 364.1. Withdrawal of Division Action.

(a) The Division may withdraw its action by written motion at any time or by oral motion on the hearing record.

(b) If the motion is made prior to the hearing, the Division shall serve a copy of the motion to withdraw on each party and on any authorized employee representative if known to the Division to represent affected employees. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

(c) Upon a showing of good cause, the Appeals Board shall grant such withdrawal by order or decision served on the parties.

(d) The employer shall post for 15 working days a copy of the order or decision granting the withdrawal. Posting shall be in a manner as prescribed in Section 356(a).

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Sections 148.7 and 6614, Labor Code.

HISTORY

1. Amendment of section heading filed 8–14–85; effective thirtieth day thereafter (Register 85, No. 33).
2. Amendment of section heading, subsections (b) and (d), and repealer of subsections (e) and (f) filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 364.2. Disposition of Appeal.

(a) Upon a showing of good cause, the Appeals Board may dispose of the issues on appeal by granting a written motion of the parties made at any time or an oral motion of the parties made on the hearing record or in the prehearing conference.

(b) The Division shall serve a copy of the disposition on any authorized employee representative if known to the Division to represent affected employees. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

(c) The Appeals Board shall grant such disposition by order or decision served on the parties.

(d) The employer shall post for 15 working days a copy of the order or decision and a copy of the disposition. Posting shall be in a manner as prescribed in Section 356(a).

(e) An appeal hearing will be taken off calendar if a disposition is received by the Appeals Board's Sacramento office before 10:00 a.m. on the working day preceding the first day of the hearing. If the terms of the disposition are given orally, confirmation by both the employer and the Division is required. The Appeals Board may allow up to 30 days for submission in writing of such oral dispositions.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Sections 148.7 and 6614, Labor Code.

HISTORY

1. Amendment of subsections (b) and (d), repealer and new subsections (e), and repealer of subsection (f) filed 10-30-92; operative 11-30-92 (Register 92, No. 44).
2. Amendment of subsection (a) filed 8-16-99; operative 9-15-99 (Register 99, No. 34).

### § 368. Amendment.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Sections 11507 and 11516, Government Code; and Sections 148.7, 6317, 6319 and 6603(a), Labor Code.

HISTORY

1. Change without regulatory effect of subsection (c) filed 6-23-86; effective thirtieth day thereafter (Register 86, No. 26).
2. Repealer filed 10-30-92; operative 11-30-92 (Register 92, No. 44).

### § 370. Application of Article.

This article applies to all proceedings before the Appeals Board brought pursuant to Part 1 (commencing with Section 6300) of Division 5 of the Labor Code, Section 2950 of the Health and Safety Code and a petition for costs pursuant to Article 6 but not a proceeding under reconsideration pursuant to Article 5.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Repealer of Article 3 (Sections 372-372.5) and new Article 3 (Sections 370-374.1) filed 6-5-80; effective thirtieth day thereafter (Register 80, No. 23). For prior history, see Registers 77, No. 19; 77, No. 2; 76, No. 38; 76, No. 18; and 76, No. 11.

## Article 3. Prehearing Procedure Discovery, and Motions

### § 371. Prehearing Motions.

(a) Any motion or request for action, any opposition thereto, and any reply relating to any proceeding shall be in writing and directed to the Appeals Board. The caption of each motion or request shall contain the title and docket or petition number of the proceeding and a clear and plain statement of the relief sought, together with the grounds therefor.

(b) Any motion or request, any opposition thereto, and any reply shall be signed by the party filing or by the party's representative, and a copy shall be served on all parties. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

(c) Unless otherwise ordered, the following dates shall apply to prehearing motions or requests:

(1) A motion or request shall be served and filed no later than 20 days before the hearing date.

(2) Any opposition to the motion shall be served and filed no later than 10 days from service of the motion or request.

(3) Any reply papers shall be served and filed no later than 5 days before the hearing date.

(d) A request to file a motion, opposition, or reply later than the times specified in (c) shall be granted if accompanied by a declaration showing good cause for the late filing.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Amendment of subsection (c) filed 2-1-84; effective thirtieth day thereafter (Register 84, No. 5).
2. Change without regulatory effect of subsection (b) filed 6-23-86; effective thirtieth day thereafter (Register 86, No. 26).
3. Amendment of article heading and subsections (a)-(c), new subsections (c)(1)-(d) and amendment of NOTE filed 10-30-92; operative 11-30-92 (Register 92, No. 44).

### § 371.1. Motions Concerning Hearing Dates.

(a) Continuances are disfavored.

(b) A motion for a continuance shall be made in writing and shall be made promptly once the reason necessitating a continuance is ascertained. The motion shall be directed to the Appeals Board. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board. It shall contain:

(1) The date(s) presently assigned for hearing and the date(s) to which continuance is sought;

(2) Facts in support of the motion; and

(3) An indication of whether the other parties to the appeal were contacted, and if so, their position on the motion.

(c) Any opposition to a motion for continuance shall be filed with the Appeals Board at any time prior to a ruling on the motion. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

(d) The motion shall be granted in the following circumstances:

(1) An emergency arises, including, but not limited to, death or illness of a party, witness, or representative; or

(2) Any other reason constituting good cause, if the motion is made no later than 15 days after service of the hearing notice.

(e) The following circumstances shall not constitute good cause:

(1) Failure to obtain representation, unless a substitution is required through no fault of the party.

(2) Failure of another party to comply with a request for discovery, unless the Appeals Board orders a continuance of the hearing after a motion to compel discovery has been filed pursuant to Section 372.6. A continuance of the hearing may be ordered only if:

(A) a motion to compel discovery was filed at a time which would not have foreseeably delayed the hearing, or good cause for such later filing is shown, and

(B) the matters sought to be discovered are of sufficient importance to warrant a continuance of the hearing.

Note: At-hearing sanctions for discovery abuses are specified in Section 372.7 of these regulations.

(f) Once a motion for continuance has been ruled on by the Appeals Board, a motion for continuance based on the same grounds shall not be entertained at the hearing.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. New section filed 10-30-92; operative 11-30-92 (Register 92, No. 44).
2. Amendment of subsection (e)(2) and new subsections (e)(2)(A)-(B) filed 8-16-99; operative 9-15-99 (Register 99, No. 34).

### § 371.2. Amendments Prior to Hearing.

(a) Once the parties are notified that an appeal is docketed by the Appeals Board, any proposed amendment of the citation or appeal shall be made in accordance with the procedures set forth in Section 371. Where the parties are notified by mail, the notification date is deemed to be five days after the date on the notification letter. An amendment by the Division that alleges a new violation may be permitted by the Appeals Board, but not after six months have elapsed since occurrence of the alleged violation.

(b) Each party shall be given notice as provided in Section 371 of the intended amendment and an opportunity to prepare a response to an

amendment which presents a new charge or defense. Any new charges or defenses shall be deemed controverted.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 11507, Government Code; Sections 6317 and 6603(a), Labor Code.

HISTORY

1. New section filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
2. Amendment of section heading and subsection (b) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).
3. Amendment of subsection (a) filed 11–26–2007; operative 12–26–2007 (Register 2007, No. 48).

### § 372. Identity of Witnesses.

After initiation of a proceeding, a party, upon written request made to another party, is entitled to obtain prior to the hearing the names and addresses of witnesses to the extent known to the other party, including, but not limited to, those intended to be called to testify at the hearing. Nothing in this section requires the disclosure of the identity of a person who submitted a complaint regarding the unsafeness of an employment or place of employment unless that person requests otherwise. A request under this section for a list of witnesses to be called may be satisfied only by the service of a list of witnesses.

NOTE: Authority cited: Sections 148.7, 149.5 and 6603(a), Labor Code. Reference: Section 11507.6, Government Code; and Sections 148.7, 149.5, 6309 and 6603(a), Labor Code.

HISTORY

1. Amendment filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 372.1. Access to Documents.

After initiation of a proceeding and prior to the hearing, a party, upon written request made to another party, is entitled to inspect and make a copy of any of the following in the possession or custody or under the control of the other party:

(a) Any statements of parties or witnesses relating to the subject matter of the proceeding;

(b) All writings or things which the party then proposes to offer in evidence;

(c) Any other writing or thing which is relevant and which would be admissible in evidence;

(d) Inspection and investigative reports made by or on behalf of the Division or other party pertaining to the subject matter of the proceeding, to the extent that such reports

(1) Contain the names and addresses of witnesses or of persons having personal knowledge of the acts, omissions or events which are the basis of the proceeding, or

(2) Reflect matters perceived by the Division in the course of its inspection, investigation or survey, or

(3) Contain or include by attachment any statement or writing described in (a) to (c), inclusive, or summary thereof.

(e) For the purpose of this section, "statements" include written statements by the person, signed or otherwise authenticated, stenographic, mechanical, electrical or other recordings or transcripts thereof, of oral statements by the person, and written reports or summaries of such oral statements.

(f) Nothing in this Section requires the disclosure of the identity of a person who submitted a complaint regarding an unsafe condition in an employment or place of employment unless that person requests otherwise. Nothing in this section authorizes the inspection or copying of any writing or thing which is privileged from disclosure by law or otherwise made confidential or protected as attorney's work product.

(g) Parties shall arrange a mutually convenient time for inspecting and copying the writings or things within 30 days of service of the written request. Unless other arrangements are made, the party requesting the writings must pay for the copying.

(h) Within 30 days of service of the written request, a party claiming that certain writings or things are privileged against disclosure shall serve on the requesting party a written statement setting forth what matters are claimed to be privileged and the reasons therefor.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Section 11507.6, Government Code; and Sections 148.7, 149.5, 6309, 6322 and 6603(a), Labor Code.

HISTORY

1. Change without regulatory effect of subsection (e) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
2. Amendment of introductory paragraph, subsections (f)–(h) and NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 372.2. Subpoena and Subpoena Duces Tecum.

(a) Before the hearing has commenced, the Appeals Board shall issue a subpoena and subpoena duces tecum at the request of a party for attendance of a person at a hearing and for production of a document or thing at the hearing or prehearing conference or at any reasonable time and place. After the hearing has commenced, the Appeals Board may, upon a showing of good cause by the requesting party, issue a subpoena or subpoena duces tecum.

(b) Application for a subpoena duces tecum requires:

(1) Compliance with the provisions of Section 1985 to 1985.4, inclusive, of the Code of Civil Procedure as a condition precedent to the issuance of a subpoena duces tecum; and that

(2) The application for a subpoena duces tecum shall be in the form of an affidavit or declaration under penalty of perjury and shall show good cause for the production of the document or thing requested, specifying the exact document or thing desired to be produced, setting forth in full detail the materiality thereof to the issues involved in the proceeding, and stating that the witness has the desired document or thing in the possession or control of the witness. The application shall also state that if the personal attendance of the witness or other qualified custodian of the records is not required, compliance pursuant to Article 4 (commencing with Section 1560) of the Evidence Code will be permitted.

(c) Any subpoena or subpoena duces tecum issued pursuant to subdivision (a) extends to all parts of the State. The provisions of Sections 1987 and 1988 of the Code of Civil Procedure are applicable to the service of a subpoena or a subpoena duces tecum. Service must be made so as to allow the witness a reasonable time for preparation and travel to the place of attendance. Service of a subpoena or subpoena duces tecum is made by delivering a copy to the witness together with a copy of the affidavit or declaration upon which the subpoena duces tecum is based, giving or offering at the same time, if demanded, the fees to which the witness is entitled for travel to and from the place designated. See Section 382 for amount of witness fees and mileage. Service shall be made by personal delivery or by certified mail return receipt requested or by messenger.

(1) Service by personal delivery may be made by any person.

(2) Service by messenger shall be effected when the witness acknowledges receipt of the subpoena to the sender, by telephone, by mail, or in person, and identifies himself or herself either by reference to date of birth and driver's license number or Department of Motor Vehicles identification number, or the sender may verify receipt of the subpoena by obtaining other identifying information from the recipient. The sender shall make a written notation of the acknowledgment. A subpoena issued and acknowledged pursuant to this section has the same force and effect as a subpoena personally served. Failure to comply with a subpoena issued and acknowledged pursuant to this section may be punished as a contempt and the subpoena may so state.

(d) All witnesses appearing pursuant to subpoena, other than the parties or officers or employees of the State or any political subdivision thereof, shall receive fees, and all witnesses appearing pursuant to subpoena, except the parties, shall receive mileage in the same amount and under the same circumstances as prescribed by law for witnesses in civil actions in a superior court. Fees and mileage shall be paid by the party at whose request the witness is subpoenaed. See Section 382 for amount of witness fees and mileage. All reasonable costs, as defined at Section 1563(b)(1) of the Evidence Code, incurred by a witness not a party, with respect to the production of a business record pursuant to a subpoena duces tecum, shall be paid to the witness before being required to deliver the document.

(e) No witness shall be obligated to attend unless the witness is a resident of the state at the time of service.

(f) Upon timely motion of a party or witness, or upon its own motion, after notice to the parties and an opportunity to be heard, upon a showing of good cause, the Appeals Board may order the quashing of a subpoena or subpoena duces tecum entirely, may modify it, or may direct compliance with it upon other terms or conditions. In addition, the Appeals Board may make any other order as may be appropriate to protect a party or witness from unreasonable or oppressive demands.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Sections 1985, 1987 and 1988, Code of Civil Procedure; Section 1563, Evidence Code; Sections 11181, 11184, 11450.10, 11450.20, 11450.30, 11450.40, 11450.50, 68093, 68097.1 and 68097.2, Government Code; and Sections 148.7, 148.8, 149.5 and 6603(a), Labor Code.

HISTORY

1. Amendment filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Amendment filed 4–24–86; effective thirtieth day thereafter (Register 86, No. 17).
3. Amendment of subsections (a), (a)(2), (b), and NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
4. Amendment of section and NOTE filed 6–23–97; operative 7–1–97 (Register 97, No. 26). This interim regulation is exempt from most of the procedural requirements of the Administrative Procedure Act (specifically, from Articles 5 and 6 of Chapter 3.5, Division 3, Title 2, Government Code) and from review by the Office of Administrative Law pursuant to Government Code sections 11400.20 and 11400.21 and will expire on December 31, 1998, unless earlier terminated or replaced by, or readopted as, permanent following the procedures of the Administrative Procedure Act.
5. Permanent adoption of amended section and NOTE filed 7–11–97; operative 7–11–97 pursuant to Government Code section 11343.4(d) (Register 97, No. 28).

## § 372.3. Deposition.

(a) The Appeals Board or a party to the proceeding may cause the deposition of a person to be taken. At the request of a party, the Appeals Board may issue a subpoena re deposition and subpoena duces tecum re deposition to compel the person to appear for deposition, and to produce books, documents, or other things. Compliance with the provisions of Section 1985 of the Code of Civil Procedure shall be a condition precedent to the issuance of a subpoena duces tecum re deposition.

(b) When a person resides outside the state, the Appeals Board, if requested by a party to the proceeding, shall attempt, when possible, to have a like agency in the other state take the deposition.

(c) A person who is subpoenaed and required to give a deposition is entitled to receive the same witness fees and mileage as if the subpoena required the person to attend and testify at the hearing. See Section 382 for amount of witness fees and mileage.

(d) No person is obligated to attend at a place out of the county of residence unless the distance is less than 75 miles from the place of residence except that the Appeals Board, upon affidavit or declaration of a party showing good cause, may endorse on the subpoena re deposition an order requiring the attendance of such person.

(e) Depositions shall be noticed, taken, filed, and used in the manner prescribed by Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure.

(f) Upon timely motion of a party or the person to be examined or notified to produce books, documents, or other things, or upon its own motion, after notice to the parties and an opportunity to be heard, upon a showing of good cause, the Appeals Board may order that the deposition not be taken, or that it may be taken only at some designated time or place other than stated in the notice of taking deposition or subpoena, or that the deposition may be taken outside the county of residence of the person to be examined and at a place more than 150 miles from the place of residence, or that certain matters shall not be inquired into, or that the scope of the examination shall be limited to certain matters, books, documents, or other things, or that the confidentiality of evidence described at Section 376.6(a) be appropriately protected. In addition, the Appeals Board may make any other order as may be appropriate to protect a party or person from unreasonable or oppressive demands.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 1985, 1987.5 and 2016–2036, Code of Civil Procedure; Sections 11181, 11184, 68093, 68097.1 and 68097.2, Government Code; and Sections 148.7, 148.8, 149.5 and 6613, Labor Code.

HISTORY

1. Change without regulatory effect of subsections (c) and (d) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
2. Amendment of subsection (c) and NOTE filed 6–23–97; operative 7–1–97 (Register 97, No. 26). This interim regulation is exempt from most of the procedural requirements of the Administrative Procedure Act (specifically, from Articles 5 and 6 of Chapter 3.5, Division 3, Title 2, Government Code) and from review by the Office of Administrative Law pursuant to Government Code sections 11400.20 and 11400.21 and will expire on December 31, 1998, unless earlier terminated or replaced by, or readopted as, permanent following the procedures of the Administrative Procedure Act.
3. Permanent adoption of amended subsection (c) and NOTE filed 7–11–97; operative 7–11–97 pursuant to Government Code section 11343.4(d) (Register 97, No. 28).

## § 372.4. Evidence by Affidavit or Declaration.

(a) At any time 10 or more days prior to a hearing or a continued hearing, a party may mail or deliver to the opposing party or parties a copy of any affidavit or declaration which the proponent proposes to introduce in evidence, together with a notice as provided in subdivision (b). Unless an opposing party, within 7 days after such mailing or delivery, mails or delivers to the proponent a request to cross–examine the affiant or declarant, the opposing party's right to cross–examine such affiant or declarant is waived and the affidavit or declaration, if introduced in evidence, shall be given the same effect as if the affiant or declarant had testified orally. If an opportunity to cross–examine an affiant or declarant is not afforded after request therefor is made as herein provided, the affidavit or declaration may be introduced in evidence, but shall be given only the same effect as other hearsay evidence.

(b) The notice referred to in subdivision (a) shall be substantially in the following form:

"The accompanying affidavit or declaration of (here insert name of affiant or declarant) will be introduced as evidence at the hearing in (here insert title and docket number or petition number of proceeding). (Here insert name) will not be called to testify orally and you will not be entitled to question the affiant or declarant unless you notify (name of the proponent, representative, agent or attorney) at (here insert address) that you wish to cross–examine the affiant or declarant. To be effective, your request must be mailed or delivered to (here insert name of proponent, representative, agent or attorney) on or before (here insert a date 7 days after the date of mailing or delivering the affidavit to the opposing party)."

(c) Nothing in this section shall be construed to limit or restrict the use of affidavits pursuant to Labor Code Section 6611.

NOTE: Authority cited: Sections 148.7, 149.5 and 6603(a), Labor Code. Reference: Section 11514, Government Code; and Sections 148.7, 149.5 and 6603(a), Labor Code.

HISTORY

1. Amendment of section heading filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Change without regulatory effect of subsections (a) and (b) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).

## § 372.5. Judicial Enforcement.

(a) If any witness refuses to attend or testify or produce any papers required by a subpoena issued by the Appeals Board, a party may file with the Appeals Board a petition for judicial enforcement. The petition shall be verified and shall set forth that due notice of the time and place of attendance of the person or the production of the papers has been given, that the person has been subpoenaed in the manner prescribed by law and these rules, and that the person has failed and refused to attend or produce the papers required by the subpoena in the cause or proceeding named in the subpoena, or has refused to answer the questions propounded in the course of the hearing or deposition.

(b) If the Appeals Board determines that judicial enforcement is appropriate, it will petition the superior court in the county in which the hearing is pending for an order compelling the person to attend and testify or produce the papers pursuant to Government Code Sections 11186 through 11188, inclusive.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 11186–11188, 11455.10 and 11455.20, Government Code; and Sections 148.7, 148.8, 149.5 and 6603, Labor Code.

HISTORY

1. Change without regulatory effect of subsection (a) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
2. Amendment of subsection (a) and NOTE filed 6–23–97; operative 7–1–97 (Register 97, No. 26). This interim regulation is exempt from most of the procedural requirements of the Administrative Procedure Act (specifically, from Articles 5 and 6 of Chapter 3.5, Division 3, Title 2, Government Code) and from review by the Office of Administrative Law pursuant to Government Code sections 11400.20 and 11400.21 and will expire on December 31, 1998, unless earlier terminated or replaced by, or readopted as, permanent following the procedures of the Administrative Procedure Act.
3. Permanent adoption of amended subsection (a) and NOTE filed 7–11–97; operative 7–11–97 pursuant to Government Code section 11343.4(d) (Register 97, No. 28).

### § 372.6. Proceeding to Compel Discovery.

(a) A party claiming that its request for discovery pursuant to Sections 372 and 372.1 has not been complied with may serve and file with the Administrative Law Judge or the Appeals Board, if the Appeals Board is hearing the case, a motion to compel discovery naming as respondent the party refusing to comply. The motion shall comply with Section 11507.7 of the Government Code and shall state:

(1) Facts showing that respondent refused or failed to comply with Section 372 or Section 372.1;

(2) A description of the matters sought to be discovered;

(3) The reason or reasons why such matter is discoverable under these rules; and

(4) A reasonable and good faith attempt to contact the respondent for an informal resolution of the issue has been made; and

(5) The ground or grounds of respondent's refusal so far as known.

(b) The motion to compel discovery shall be served upon respondent and filed within 15 days after respondent first evidenced a refusal or failure to comply with Sections 372 and 372.1, or within 30 days after the discovery request was made and respondent has failed to reply to the request, or within another time stipulated by the parties with the approval of the Administrative Law Judge or the Appeals Board, whichever period is longer. The motion shall comply with Section 371(a) and (b).

(c) The hearing on the motion to compel discovery shall be held within 15 days after the motion is made, or a later time that the Administrative Law Judge or the Appeals Board may, on its own motion for good cause determine. Respondent shall have the right to serve and file a written answer or other response to the motion before or at the time of hearing. The answer must comply with Section 371(a) and (b). The hearing may be conducted by telephone or other electronic means as provided in Government Code Section 11140.30. The parties may stipulate, with the approval of the Administrative Law Judge or the Appeals Board, to waive a hearing on the motion to compel discovery, provided that the stipulation provides a date by which respondent shall file its response and requires that the order on the motion shall issue within 30 days of the date the motion was filed.

(d) Where the matter sought to be discovered is under the custody or control of respondent and respondent asserts that the matter is not a discoverable matter under the provisions of Section 372.1(a) through (d), or is privileged against disclosure under (f), the Administrative Law Judge or the Appeals Board may order that the matter be lodged with it and examined in accordance with the provisions of Subdivision (b) of Section 915 of the Evidence Code. The Administrative Law Judge or the Appeals Board shall decide the motion based upon the matters examined in camera, the papers filed by the parties, and such oral argument and additional evidence as the Administrative Law Judge or the Appeals Board may allow.

(e) Unless otherwise stipulated by the parties with the approval of the Administrative Law Judge or the Appeals Board, the Administrative Law Judge or the Appeals Board shall, no later than 15 days after the hearing, issue a written order denying or granting the motion. The Administrative Law Judge or the Appeals Board shall promptly serve a copy of the order to each party or representative. Where the order grants the motion, in whole or in part, the order shall set forth the matters the moving party is entitled to discover under Sections 372 and 372.1. The order shall not become effective until 10 days after the date the order is served. Where the order denies the motion in its entirety, the order shall be effective on the date it is served.

NOTE: Authority cited: Sections 148.7, 149.5 and 6603(a), Labor Code. Reference: Section 11507.7, Government Code; and Sections 148.7, 149.5 and 6603(a), Labor Code.

HISTORY

1. Amendment of subsection (b) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Change without regulatory effect of subsection (a) and (b) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
3. Amendment filed 6–23–97; operative 7–1–97 (Register 97, No. 26). This interim regulation is exempt from most of the procedural requirements of the Administrative Procedure Act (specifically, from Articles 5 and 6 of Chapter 3.5, Division 3, Title 2, Government Code) and from review by the Office of Administrative Law pursuant to Government Code sections 11400.20 and 11400.21 and will expire on December 31, 1998, unless earlier terminated or replaced by, or readopted as, permanent following the procedures of the Administrative Procedure Act.
4. Permanent adoption of amended section, including new subsection (a)(4), subsection renumbering, and additional amendment of subsections (c) and (d), filed 7–11–97; operative 7–11–97 pursuant to Government Code section 11343.4(d) (Register 97, No. 28).
5. Amendment of subsections (a) and (b)–(e) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 372.7. Discovery Abuses.

(a) The Administrative Law Judge or the Appeals Board may impose sanctions on a party who fails to respond to an authorized request for discovery or makes an evasive or incomplete response to discovery where such action results in surprise to the requesting party at the hearing.

(b) Such sanctions may include:

(1) An order prohibiting the introduction of designated matters into evidence by the abusing party; and/or

(2) An order establishing designated facts, claims, or defenses against the abusing party in accordance with the claim of a party adversely affected.

(3) Any other order as the Administrative Law Judge or the Appeals Board may deem appropriate under the circumstances.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 148.7, Labor Code.

HISTORY

1. New section filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
2. Amendment of subsections (a) and (b)(3) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 373. Expedited Proceeding.

Upon motion of a party or upon its own motion, the Appeals Board may order an expedited proceeding. All parties shall be notified and shall be expected to do all things necessary to complete the proceeding in the minimum time consistent with fairness. Time limits for filing a motion to compel discovery, and for responsive filings under Section 372.6 may be shortened as necessary to accommodate the expedited date for disposition of the case.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Amendment filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 374. Prehearing Conference.

(a) At any time before a hearing, upon motion of a party or upon its own motion, the Appeals Board may notice and order a prehearing conference for the purposes of simplifying the issues, expediting a hearing and affording parties an opportunity to participate in the disposition of the appeal. The prehearing conference may be conducted by means of a telephone conference call.

(b) Each party to a prehearing conference shall be prepared to discuss the issues, stipulate to any factual or legal issue about which there is no dispute, stipulate to the identification and admissibility of documentary evidence, comply with any request for discovery, report on discovery sta-

tus where the ALJ has compelled discovery prior to the prehearing, and to do such other things as may aid in the disposition of the proceeding.

(c) The failure of a party or its representative to prepare for and participate in the prehearing conference shall be grounds for the imposition of such sanctions, inferences or other orders, then or during the hearing, as the Appeals Board may deem appropriate. These sanctions may include striking or excluding evidence offered by the non-complying party on that dispute, or precluding that party from contesting the position or information on that issue provided by the complying party.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Amendment filed 10-30-92; operative 11-30-92 (Register 92, No. 44).
2. Amendment of subsection (b) filed 11-26-2007; operative 12-26-2007 (Register 2007, No. 48).

### § 374.1. Prehearing Statement.

At any time before a hearing, a party may file with the Appeals Board a statement of position or trial brief with respect to any issue to be decided.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

### § 374.3. Settlement Conference.

The Appeals Board on its own motion, or upon written request of a party, may schedule a settlement conference to be held before an administrative law judge who shall not hear the appeal, unless otherwise stipulated by the parties. Each party shall attend or be represented by a person authorized to negotiate regarding settlement. The settlement conference may be conducted by means of a telephone conference call.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 148.7, Labor Code.

HISTORY

1. New section filed 10-30-92; operative 11-30-92 (Register 92, No. 44).

## Article 4. Hearing

### § 375. Application of Article.

This article applies to all hearings before the Appeals Board, including a further hearing during reconsideration pursuant to Article 5 and a hearing on petition for costs pursuant to Article 6.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Repealer of Article 4 (Sections 375-385) and new Article 4 (Sections 375-385) filed 6-5-80; effective thirtieth day thereafter (Register 80, No. 23).

### § 375.1. Assignment to Administrative Law Judge.

(a) The Appeals Board may assign to an Administrative Law Judge for hearing and order or decision, or for hearing and proposed order or decision, or for hearing before the Appeals Board itself, any proceeding, any further hearing during reconsideration pursuant to Article 5, and hearing on petition for costs pursuant to Article 6.

(b) The Appeals Board may assign to an Administrative Law Judge any other proceeding that requires a hearing and order or decision.

(c) The Appeals Board may transfer to another Administrative Law Judge any proceeding if no oral testimony has been received. In the event proceedings have commenced and the assigned Administrative Law Judge is unable to complete the proceeding because of death, extended absence or disqualification, the Appeals Board may reassign such proceedings to another Administrative Law Judge who shall conduct a hearing de novo. The hearing de novo may be waived if all parties stipulate that the newly assigned Administrative Law Judge may review the hearing record and all of the evidence received, and that the hearing may proceed as if he had presided from the beginning.

(d) The Appeals Board may assign a further hearing or supplemental proceedings to the Administrative Law Judge who heard the original proceeding.

NOTE: Authority cited: Sections 148.7, 149.5, 6604 and 6605, Labor Code. Reference: Section 11182, Government Code; and Sections 148.7, 148.8, 149.5, 6604, 6605 and 6607, Labor Code.

HISTORY

1. Amendment of subsections (a) and (b) filed 2-1-84; effective thirtieth day thereafter (Register 84, No. 5).

### § 375.2. Objections to Particular Administrative Law Judge.

(a) The name of the particular Administrative Law Judge assigned by the Appeals Board to a proceeding is available upon request at the time the proceeding is noticed for hearing.

(b) A party wishing to object to the assignment of any proceeding to a particular Administrative Law Judge upon any one or more of the grounds specified in Government Code Section 11425.40 shall, at least 5 working days prior to the scheduled hearing, file with the Appeals Board or Administrative Law Judge a motion to disqualify the assigned Administrative Law Judge together with supporting affidavit or declaration. The hearing shall not begin until the Appeals Board has ruled on the motion.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Section 641, Code of Civil Procedure; and Sections 148.7, 149.5, and 6606, Labor Code.

HISTORY

1. Amendment filed 2-1-84; effective thirtieth day thereafter (Register 89, No. 5).
2. Amendment of subsection (b) filed 8-16-99; operative 9-15-99 (Register 99, No. 34).

### § 376. Time and Place of Hearing.

(a) Appeals shall be heard promptly.

(b) Appeals relating to a special order, order to take special action, the reasonableness of the abatement period and an expedited proceeding shall be given priority over other proceedings.

(c) In cases being reviewed by the Bureau of Investigations, unless the employer submits a written request that its appeal go forward in the normal course, the Appeals Board shall delay the hearing until the conclusion of a review of the case by the Bureau of Investigations or for a period not exceeding 2 years, whichever occurs earlier. The period may be extended beyond 2 years at a party's request if necessary to allow the Bureau of Investigations to conclude its review of the case.

(d) The Appeals Board shall set the place of the hearing at a location as near as practicable to the place of employment where the violation is alleged to have occurred.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 149.5 and 6308(c), Labor Code.

HISTORY

1. Amendment of subsection (a) filed 8-14-85; effective thirtieth day thereafter (Register 85, No. 33).
2. Amendment filed 10-30-92; operative 11-30-92 (Register 92, No. 44).
3. Repealer and new subsection (c) filed 8-16-99; operative 9-15-99 (Register 99, No. 34).

### § 376.1. Conduct of Hearing.

(a) Testimony shall be taken only on oath, affirmation, or penalty of perjury.

(b) Each party shall have these rights: To call and examine witnesses; to introduce exhibits; to question opposing witnesses on any matter relevant to the issues even though that matter was not covered in the direct examinations; to impeach any witness regardless of which party first called the witness to testify; and to rebut any opposing evidence. If a party does not testify on his or her behalf, the party may be called and examined as if under cross-examination.

(c) The Appeals Board may call and examine a party or witness and may, on its own motion, admit any relevant and material evidence.

(d) The taking of evidence in a hearing shall be controlled by the Appeals Board in the manner best suited to ascertain the facts and safeguard the rights of the parties. Prior to taking evidence, the Appeals Board shall define the issues and explain the order in which evidence will be received.

(e) Once a hearing has commenced and until a decision is issued, all motions or questions regarding the proceeding shall be referred to the assigned administrative law judge. If written, the motion shall be served in

a manner as prescribed in Section 355(c) and proof of service meeting the requirements of Section 355(e) shall be filed with the Appeals Board. An opposing party may respond in the manner and within such time as the administrative law judge may direct.

(f) Continuance requests shall be entertained at the hearing only in cases of: (1) unforeseen emergencies, including, but not limited to, death or illness of a party, witness, or representative, or (2) non–appearance of a subpoenaed witness whose testimony is material to the outcome of the proceeding.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Section 11513, Government Code; and Sections 148.7, 149.5 and 6603(a), Labor Code.

HISTORY

1. Change without regulatory effect of subsection (b) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
2. Amendment of subsections (b) and (e), new subsection (f), and amendment of NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 376.2. Evidence Rules.

The hearing need not be conducted according to technical rules relating to evidence and witnesses. Any relevant evidence shall be admitted if it is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs, regardless of the existence of any common law or statutory rule which might make improper the admission of such evidence over objection in civil actions. Hearsay evidence may be used for the purpose of supplementing or explaining other evidence but over timely objection shall not be sufficient in itself to support a finding unless it would be admissible over objection in civil actions. An objection to hearsay evidence is timely if made before submission of the case or raised in a petition for reconsideration. The rules of privilege shall be effective to the extent that they are otherwise required by statute to be recognized at the hearing and irrelevant evidence shall be excluded. The Appeals Board may exclude evidence if its probative value is substantially outweighed by the probability that its admission will necessitate undue consumption of time.

NOTE: Authority cited: Sections 148.7, 149.5 and 6603(a), Labor Code. Reference: Section 11513, Government Code; and Sections 148.7, 149.5, 6603(a) and 6612, Labor Code.

HISTORY

1. Amendment filed 6–23–97; operative 7–1–97 (Register 97, No. 26). This interim regulation is exempt from most of the procedural requirements of the Administrative Procedure Act (specifically, from Articles 5 and 6 of Chapter 3.5, Division 3, Title 2, Government Code) and from review by the Office of Administrative Law pursuant to Government Code sections 11400.20 and 11400.21 and will expire on December 31, 1998, unless earlier terminated or replaced by, or readopted as, permanent following the procedures of the Administrative Procedure Act.
2. Permanent adoption of amended section and NOTE filed 7–11–97; operative 7–11–97 pursuant to Government Code section 11343.4(d) (Register 97, No. 28).

### § 376.3. Official Notice.

(a) In reaching a decision, official notice may be taken, either before or after submission of the proceeding for decision, of any generally accepted technical or scientific matter within the field of occupational safety and health, and determinations, rulings, orders, findings and decisions, required by law to be made by the Division, the Appeals Board or the Standards Board.

(b) The Appeals Board shall take official notice of those matters set forth in Section 451 of the Evidence Code, including but not limited to:

(1) The decisional, constitutional, and public statutory law of this State and of the United States and the provisions of any county or city charter;

(2) The contents of each occupational safety and health standard and order or notice of the repeal of such standard and order;

(3) The true signification of all English words and phrases and of all legal expressions;

(4) Facts and propositions of generalized knowledge that are so universally known that they cannot reasonably be the subject of dispute.

(c) The Appeals Board may take official notice of those matters set forth in Section 452 of the Evidence Code, including but not limited to:

(1) Regulations and legislative enactments issued by or under the authority of the United States or any public entity in the United States;

(2) Official acts of the legislative, executive, and judicial departments of the United States and of any state of the United States;

(3) Records of any court of this state or any court of record of the United States or of any state of the United States;

(4) Facts and propositions that are of such common knowledge within California that they cannot reasonably be the subject of dispute;

(5) Facts and propositions that are not reasonably subject to dispute and are capable of immediate and accurate determination by resort to sources of reasonably indisputable accuracy.

(d) Each party shall give notice of a request to take official notice and be given reasonable opportunity on request to present information relevant to

(1) the propriety of taking official notice, and

(2) the tenor of the matter to be noticed.

NOTE: Authority cited: Sections 148.7, 149.5 and 6603(a), Labor Code. Reference: Sections 451, 452 and 455, Evidence Code; Section 11515, Government Code; Sections 148.7, 149.5 and 6603(a), Labor Code.

### § 376.4. Return of Exhibit.

(a) During the pendency of any proceeding, no exhibit filed or received in evidence shall be released into the custody of a party or representative except upon stipulation of all parties or upon order of the Appeals Board.

(b) At any time after a proceeding becomes final, the Appeals Board may, upon request or on its own motion, with or without notice, return to the owner or proponent, all exhibits of a physical, mechanical, or demonstrative character, unless the parties stipulate to some other disposition. The owner or proponent shall bear the cost of return of the exhibit.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Change without regulatory effect of subsection (a) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).

### § 376.5. Interpreters.

(a) The hearing and prehearing conference shall be conducted in the English language. The Appeals Board shall notify each party of the right to an interpreter at the time they are notified of the date of the prehearing conference and of the hearing date.

(b) A party who does not proficiently speak or understand the English language or who requests an interpreter shall be provided, during the hearing or prehearing conference, an interpreter approved by the Appeals Board. A request for an interpreter shall be made to the Appeals Board no later than 10 working days prior to the date the interpreter is needed. The cost of providing the interpreter for a party shall be paid by the party requesting the interpreter unless the Appeals Board directs that the Appeals Board shall pay the cost of providing the interpreter due to financial hardship of the requesting party.

(c) If a party's witness does not proficiently speak or understand the English language, the terms and conditions set forth in subsection (b) shall apply. The party presenting the witness may request the Appeals Board to provide an interpreter under those terms and conditions. The cost of providing the interpreter for a witness shall be paid by the party presenting the witness unless the Appeals Board directs that the Appeals Board shall pay the cost of providing the interpreter due to financial hardship of that party.

(d) Language assistance for a party or a party's witness includes oral interpretation or written translation of a language other than English into English or of English into another language, and provision of sign interpreters for deaf or hard–of–hearing parties or persons.

(e) A person whose name appears on the list of interpreters known to be proficient in various languages published by the State Personnel Board shall be eligible to be examined by the Appeals Board relating to terminology and procedures generally used in hearings before the Appeals Board.

(f) In the event that interpreters on the approved list cannot be present at the hearing or the prehearing conference, or if there is no interpreter

on the approved list for a particular language, the Appeals Board may qualify and appoint other interpreters.

(g) Before appointment of an interpreter, the Appeals Board or a party may conduct a brief supplemental examination of the prospective interpreter to see if the person has the qualifications necessary to serve as an interpreter in the hearing or prehearing conference and to see if the person understands terms and procedures generally used in hearings and prehearing conferences before the Appeals Board, can explain these terms and procedures in English and the other language being used, and can interpret these terms and procedures into the other language. An interpreter shall not have had any involvement in the issues of the proceeding prior to the hearing or prehearing conference, and shall disclose to the Appeals Board and to all parties any actual or apparent conflict of interest. Any condition that interferes with the objectivity of an interpreter constitutes a conflict of interest. A conflict may exist if an interpreter is acquainted with or related to a party or witness to the proceeding or if an interpreter has an interest in the outcome of the proceeding.

(h) The Appeals Board shall disqualify an interpreter if the interpreter cannot understand and interpret the terms and procedures used in the hearing or prehearing conference, has engaged in conduct creating the appearance of bias, prejudice, or partiality, or has disclosed privileged or confidential communications.

NOTE: Authority cited: Sections 148.7 and 6603(a), Labor Code. Reference: Sections 11435.15, 11435.20, 11435.25, 11435.30(a), 11435.55(a), 11435.60 and 11435.65, Government Code; and Sections 148.7, 149.5 and 6603(a), Labor Code.

HISTORY

1. Amendment of subsection (b) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
2. Change without regulatory effect of subsection (f) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
3. Amendment of subsections (b)–(d), (g) and NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
4. Amendment of section and NOTE filed 6–23–97; operative 7–1–97 (Register 97, No. 26). This interim regulation is exempt from most of the procedural requirements of the Administrative Procedure Act (specifically, from Articles 5 and 6 of Chapter 3.5, Division 3, Title 2, Government Code) and from review by the Office of Administrative Law pursuant to Government Code sections 11400.20 and 11400.21 and will expire on December 31, 1998, unless earlier terminated or replaced by, or readopted as, permanent following the procedures of the Administrative Procedure Act.
5. Permanent adoption of amended section and NOTE filed 7–11–97; operative 7–11–97 pursuant to Government Code section 11343.4(d) (Register 97, No. 28).
6. Amendment of subsection (d) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 376.6. Confidential Evidence.

(a) Any exhibit which contains or which might reveal a trade secret referred to in Section 1905 of Title 18 of the United States Code, information that is confidential pursuant to Chapter 3.5 (commencing with Section 6250) of Division 7 of Title 1 of the Government Code, or photographs taken by the Division during the course of any inspection or investigation, shall be considered confidential.

(b) The Appeals Board shall issue such orders as may be appropriate to protect the confidentiality of trade secrets or other such confidential information.

(c) If testimony is taken which would reveal the substance of trade secrets or other such confidential information, the Appeals Board may exclude from the hearing room any person or witness; but a party to the proceeding, the party's representative, and the inspector or investigator for the Division and the Division's representative shall not be excluded.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7, 149.5, 6314(a) and 6322, Labor Code.

HISTORY

1. Change without regulatory effect of subsection (c) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).

### § 376.7. Hearing Record.

The Appeals Board shall make the official record for hearings. The record shall be made by means of an electronic device or by a court reporter. A party desiring the presence of a court reporter must make its own arrangements.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 6608, 6620, 6621 and 6629, Labor Code.

HISTORY

1. New section filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 377. Continuance of Hearing.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Repealer filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 378. Representation at Hearing.

(a) A party may appear in person or through a representative who is not required to be an attorney at law. A representative shall file a written notice of representation with the Sacramento Office of the Appeals Board and serve a copy on all parties. Service shall be in a manner prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

(b) A representative of a party shall be deemed to control all matters respecting the interest of such party in the proceeding.

(c) An employee who is represented by an authorized employee representative may appear through such authorized employee representative.

(d) A representative may withdraw its representation of a party by filing a written notice of withdrawal with the Appeals Board and by serving a copy on all parties. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Change without regulatory effect of subsection (d) filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).
2. Amendment of subsections (a) and (d), repealer of subsection (e), and amendment of NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 379. Exclusion of Witnesses.

Upon motion of a party, the Appeals Board may exclude from the hearing room any witnesses not at the time under examination; but a party to the proceeding, the party's representative, and the inspector or investigator for the Division and the Division's representative shall not be excluded.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Change without regulatory effect filed 6–23–86; effective thirtieth day thereafter (Register 86, No. 26).

### § 380. Briefs.

A motion for leave to submit a written post–hearing brief shall be made prior to the close of the hearing and shall be granted in the discretion of the Administrative Law Judge or the Appeals Board upon a determination that the brief will be productive and will not unreasonably delay the disposition of the proceeding. A party shall file its brief within 15 working days from the date of the hearing. Opposing parties may file an answer within 10 working days from service of the brief. The Administrative Law Judge or the Appeals Board, upon a showing of good cause, may extend or reduce the above filing dates for submission of a brief. Service on a party shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Administrative Law Judge or the Appeals Board. An original brief shall be filed with the Appeals Board in Sacramento, with a copy provided to the administrative law judge assigned to the hearing.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Amendment filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
2. Amendment of section heading, repealer of subsection (a) and subsection (b) designator and amendment of section filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 381. Contempt; Bad Faith Actions and Tactics.

(a) If any person in proceedings before the Appeals Board disobeys or resists any lawful order or refuses, without substantial justification, to respond to a subpoena, subpoena duces tecum, or refuses to take the oath or affirmation as a witness or thereafter refuses to be examined, or is guilty of misconduct during a hearing or so near the place thereof as to obstruct the proceedings, the Administrative Law Judge or the Appeals Board may, on its own motion or the motion of a party:

(1) Certify the facts to the Superior Court in and for the county where the proceedings are held for contempt proceedings pursuant to Government Code Section 11455.20;

(2) Exclude the person from the hearing room;

(3) Prohibit the person from testifying or introducing designated matters in evidence;

(4) Establish designated facts, claims, or defenses if the person is a party;

(5) Grant the appeal without further proceedings if the person is a representative of the Division; or

(6) Dismiss the appeal without further proceedings if the person is the Employer or a representative of the Employer.

(b) If, after the docketing of an appeal and before submission of the appeal proceeding as provided in section 385, a party, representative or both engage in bad–faith actions or tactics that are frivolous or solely intended to cause unnecessary delay, the Administrative Law Judge or the Appeals Board may order that party, representative or both to pay any reasonable expenses, including attorney's fees, incurred by another party as a result of those bad faith actions or tactics.

(1) "Frivolous" means totally and completely without merit or for the sole purpose of harassing an opposing party.

(c) For purposes of subsection (b), before an order for reasonable costs is issued, a noticed hearing will be scheduled. An order to show cause will be issued stating the date, time, and place of the hearing at which all parties will have an opportunity to be heard as to whether or not reasonable costs should be ordered.

(d) A decision ordering or denying the payment of reasonable expenses incurred shall be in writing and comply with the provisions of Section 385. A decision ordering a party to pay reasonable expenses incurred by another party shall state in detail the conduct or circumstances justifying the order. A decision by an Administrative Law Judge under this section shall be subject to review by a petition for reconsideration under Article 5 of the Appeals Board's regulations. A final decision, as defined in Section 396(c), is enforceable as provided in Section 11455.30 of the Government Code.

NOTE: Authority cited: Sections 148.7 and 6603, Labor Code. Reference: Sections 11186–11188, 11455.10, 11455.20 and 11455.30, Government Code; and Sections 148.7, 148.8, 149.5 and 6603, Labor Code.

HISTORY

1. Amendment filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
2. Amendment of section heading, section and NOTE filed 6–23–97; operative 7–1–97 (Register 97, No. 26). This interim regulation is exempt from most of the procedural requirements of the Administrative Procedure Act (specifically, from Articles 5 and 6 of Chapter 3.5, Division 3, Title 2, Government Code) and from review by the Office of Administrative Law pursuant to Government Code sections 11400.20 and 11400.21 and will expire on December 31, 1998, unless earlier terminated or replaced by, or readopted as, permanent following the procedures of the Administrative Procedure Act.
3. Permanent adoption of amended section heading, section and NOTE, including additional amendment of subsection (b), filed 7–11–97; operative 7–11–97 pursuant to Government Code section 11343.4(d) (Register 97, No. 28).
4. Amendment of section heading and amendment of subsections (a), (b) and (c)–(d) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 382. Witness Fees.

(a) Witnesses subpoenaed for any deposition or hearing are entitled to the following fees and mileage, payable in advance:

(1) Witness fee for each day's actual attendance of thirty–five dollars ($35);

(2) Mileage actually traveled, both ways, of twenty cents ($.20) a mile;

(b) A party who subpoenas a peace officer as listed at Government Code Section 68097.1 shall reimburse the public entity for the full cost to the public entity incurred in paying the officer his salary or other compensation and traveling expenses for each day that such officer is required to remain in attendance. The amount of one hundred and fifty dollars ($150), together with the subpoena, shall be tendered to the person accepting the subpoena for each day that the officer is required to remain in attendance pursuant to the subpoena. If the actual expenses should later prove to be less than the amount tendered, the difference shall be refunded; or if the actual expenses should later prove to be more than the amount tendered, the difference shall be paid to the public entity by the party at whose request the subpoena was issued.

NOTE: Authority cited: Sections 148.7, 149.5 and 6603(a), Labor Code. Reference: Sections 11191, 11450.40, 68093, 68097.1 and 68097.2, Government Code; and Sections 148.7, 148.8, 149.5 and 6603(a), Labor Code.

HISTORY

1. Amendment of subsections (a) and (c) filed 2–1–84; effective thirtieth day thereafter (Register 84, No 5).
2. Amendment of section and NOTE filed 6–23–97; operative 7–1–97 (Register 97, No. 26). This interim regulation is exempt from most of the procedural requirements of the Administrative Procedure Act (specifically, from Articles 5 and 6 of Chapter 3.5, Division 3, Title 2, Government Code) and from review by the Office of Administrative Law pursuant to Government Code sections 11400.20 and 11400.21 and will expire on December 31, 1998, unless earlier terminated or replaced by, or readopted as, permanent following the procedures of the Administrative Procedure Act.
3. Permanent adoption of amended section and NOTE, including additional amendment of subsection (a), filed 7–11–97; operative 7–11–97 pursuant to Government Code section 11343.4(d) (Register 97, No. 28).

### § 383. Failure to Appear.

(a) If after service of a notice of hearing, notice of consolidated hearing, or continuance, a party fails to appear at a hearing either in person or by representative, the Appeals Board may take the proceeding off calendar; may, after notice, dismiss the proceeding; or may receive evidence from any party that appears.

(b) Any proceeding may be reinstated by the Appeals Board if the non–appearing party files a written motion, no later than ten (10) days after receipt of notification of intent to dismiss, that contains sufficient facts to establish a reasonable basis for the failure to appear at the hearing. A party opposing the reinstatement of any proceeding may file a response no later than ten (10) days from service of the reinstatement request. The motion and response shall be accompanied by a declaration containing a statement that any facts therein are based upon the personal knowledge of the delcarant. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 149.5 and 6611, Labor Code.

HISTORY

1. Amendment filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 384. Proposed Decisions; Action on by Appeals Board.

(a) If a proceeding is referred to an Administrative Law Judge for hearing and preparation of a proposed order or decision pursuant to Labor Code Section 6604(b), the judge shall prepare a proposed order or decision in such form that it may be adopted as the order or decision in the case. A copy of the proposed order or decision shall be a public record. The Appeals Board may confirm, adopt, modify or set aside the proposed order or decision of the Administrative Law Judge and may, with or without further proceedings and with or without notice, enter its order, findings, or decision based upon the record in the case. Whenever the Appeals Board determines that additional evidence is necessary, it may take additional evidence in the case, or it may reassign the case to the same or to another Administrative Law Judge to take additional evidence. If the case is so reassigned to an Administrative Law Judge, the judge shall prepare a proposed order or decision.

(b) The Appeals Board shall take action on a proposed order or decision as described in subsection (a) above within 30 days after the case is submitted.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7, 149.5, 6604(b), 6608 and 6609, Labor Code.

HISTORY

1. Amendment filed 2-1-84; effective thirtieth day thereafter (Register 84, No. 5).

### § 385. Decisions.

(a) Unless otherwise ordered, all proceedings shall be submitted for decision at the close of the hearing. The Appeals Board or Administrative Law Judge may extend the submission date and shall, within 30 days after the proceeding is submitted, summarize the evidence received and relied upon, make findings upon all facts involved in the appeal, and file an order or decision with the reasons or grounds upon which the order or decision was made.

(b) The order or decision shall be in writing, signed and dated by the Administrative Law Judge or the members of the Appeals Board deciding the proceeding.

(c) A copy of the order or decision shall be served on each party or representative together with a statement informing the parties of their right to petition the Appeals Board for reconsideration of the order or decision within 30 days of service of the order or decision.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7, 149.5, 6608 and 6609, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 2-1-84; effective thirtieth day thereafter (Register 84, No. 5).
2. Change without regulatory effect of subsection (c) filed 6-23-86; effective thirtieth day thereafter (Register 86, No. 26).
3. Amendment of subsection (a) filed 11-26-2007; operative 12-26-2007 (Register 2007, No. 48).

### § 386. Post-Submission Amendments.

(a) The Appeals Board may amend the issues on appeal or the Division action after a proceeding is submitted for decision in order to:

(1) Correct a clerical error;

(2) Address an issue litigated by the parties;

(3) Amend the section number cited in the citation if the same set of facts apply to both the cited and proposed sections; or

(4) Amend any part of the Division action to conform it to a statutory requirement.

(b) Each party shall be given notice of the intended amendment and the opportunity to show that the party will be prejudiced thereby. If such prejudice is shown, the amendment shall not be made.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 6603(a), Labor Code; Section 11516, Government Code.

HISTORY

1. New section filed 10-30-92; operative 11-30-92 (Register 92, No. 44).

## Article 5. Reconsideration

### § 389. Application of Article.

This article applies to all petitions for reconsideration, all orders of reconsideration on the Appeals Board's own motion, all answers in response, if any, and the taking of additional evidence by further hearing.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. Repealer of Article 5 (Sections 390-394) and new Article 5 (Sections 389-394) filed 6-5-80; effective thirtieth day thereafter (Register 80, No. 23). For prior history, see Registers 77, No. 19; 77, No. 2; and 76, No. 38.)

### § 390. Filing of Petition and Answer.

(a) A party aggrieved by an order or decision may, within 30 days of service of such order or decision, petition the Appeals Board for reconsideration with respect to any matters determined or covered by the order or decision. The petition for reconsideration shall be filed at the Appeals Board in Sacramento, California, and shall be deemed filed on the date it is delivered or mailed to the Appeals Board.

(b) A party may, within 30 days of service of any petition for reconsideration, file an answer with the Appeals Board.

(c) Any petition for reconsideration and answer shall be signed by the party filing or by his representative and, except for those agencies listed at Section 446 of the Code of Civil Procedure, verified upon oath.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Section 446, Code of Civil Procedure; Sections 148.7, 149.5, 661(a), 6616 and 6619, Labor Code.

HISTORY

1. Amendment of subsections (a) and (c) filed 2-1-84; effective thirtieth day thereafter (Register 84, No. 5).

### § 390.1. Reconsideration: General.

(a) The petition for reconsideration shall be based upon one or more of the following grounds:

(1) That by the order or decision the Appeals Board acted without or in excess of its powers;

(2) That the order or decision was procured by fraud;

(3) That the evidence received by the Appeals Board does not justify the findings of fact;

(4) That petitioner has discovered new material evidence which the petitioner could not, with reasonable diligence, have discovered and produced at the hearing;

(5) That the findings of fact do not support the order or decision.

(b) Upon reconsideration, the Appeals Board may:

(1) Affirm, rescind, alter, or amend the findings, order or decision, or

(2) Request oral argument, the filing of briefs and amicus curiae (amicus) briefs, or other proceedings not involving the taking of additional evidence.

(3) Direct the taking of additional evidence either by submission or by further hearing as provided in Sections 393 and 394.

(c) If the Appeals Board is satisfied that no additional evidence is necessary, after considering the record, with or without further proceedings, it may enter its order, findings, or decision after reconsideration.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7, 149.5, 6617, 6620 and 6621, Labor Code.

HISTORY

1. Change without regulatory effect of subsection (a)(4) filed 6-23-86; effective thirtieth day thereafter (Register 86, No. 26).
2. New subsection (b)(2), subsection renumbering and amendment of subsection (c) filed 8-16-99; operative 9-15-99 (Register 99, No. 34).

### § 390.2. Appeals Board Reconsideration on Its Own Motion.

(a) At any time within 30 days of the filing of any order or decision, the Appeals Board may, on its own motion, order reconsideration with respect to any matters determined or covered by the order or decision. The Appeals Board shall notify the parties if it orders reconsideration.

(b) A party may, within 30 days of service of any order of reconsideration, file an answer with the Appeals Board.

(c) Any answer shall be signed by the party filing or by the representative and, except for those agencies listed at Section 446 of the Code of Civil Procedure, verified upon oath.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Section 446, Code of Civil Procedure; Sections 148.7, 149.5, 6614(b) and 6619, Labor Code.

HISTORY

1. Amendment of subsection (c) filed 2-1-84; effective thirtieth day thereafter (Register 84, No. 5).
2. Change without regulatory effect of subsection (c) filed 6-23-86; effective thirtieth day thereafter (Register 86, No. 26).

### § 390.3. Final Order or Decision.

(a) If within 30 days of the filing of an order or decision no petition for reconsideration has been filed, and no reconsideration has been ordered on the Appeals Board's own motion, the order or decision is a final order of the Appeals Board and not subject to review by any court or agency.

(b) Any petition for reconsideration shall be deemed to have been denied by the Appeals Board if it is not acted upon within 45 days of service and the order or decision is a final order of the Appeals Board and not subject to review by any court or agency. The Appeals Board may, however, upon a showing of good cause, extend the time within which it may act upon the petition for a period not exceeding 15 days.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 149.5, 6615 and 6624, Labor Code.

HISTORY

1. Amendment of subsection (b) and NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 390.9. Suspension of Order or Decision.

The Appeals Board may stay, suspend or postpone the order or decision pending an order, findings, or decision after reconsideration.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7, 149.5 and 6625, Labor Code.

### § 391. Format of Petition for Reconsideration.

A petition for reconsideration shall set forth specifically and in full detail the grounds upon which the petitioner considers the order or decision to be unjust or unlawful, and every issue to be considered by the Appeals Board on reconsideration. Any objection or issue not raised in the petition for reconsideration is deemed waived by the petitioner. The petition for reconsideration will be denied if it contains no more than allegations of the statutory grounds for reconsideration, unsupported by specific references to the record and principles of law involved.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 149.5 and 6618, Labor Code.

HISTORY

1. Amendment filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 391.1. Filing of Petition for Reconsideration—Date.

(a) A petition meeting all requirements of these regulations and the Labor Code shall be deemed filed on the date indicated on the proof of service. If there is no proof of service, the date of filing shall be the date of hand delivery to the Sacramento Office of the Appeals Board or the mailing date.

(b) A petition that is not properly verified upon oath and/or not accompanied by a proof of service shall be considered filed in accordance with subsection (a) if the petitioner perfects the petition by filing the verification and/or proof of service within five days of the date of service of a letter from the Appeals Board noting the omission(s).

(c) Failure to perfect a petition in accordance with Subsection (b) shall result in the dismissal of the petition.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 6614, 6615, 6620, 6624, and 6625, Labor Code.

HISTORY

1. New section filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 392. Proof of Service.

A petition for reconsideration, supplemental petition, answer, and supplemental answer shall be served on all parties who have been joined in the proceeding at the time of filing. Service shall be in a manner as prescribed in Section 355(c) and proof of such service meeting the requirements of Section 355(e) shall be filed with the Appeals Board.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7, 149.5, and 6619, Labor Code.

HISTORY

1. Amendment filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 392.3. Motion to File Supplemental Petition or Answer.

(a) If a petition for reconsideration has been timely filed, a motion to file a supplemental petition may be granted at the discretion of the Appeals Board. If the motion is granted, the Appeals Board shall include in the order the date by which the supplemental petition must be received.

(b) An opposing party may file an answer to a supplemental petition no later than 30 days from the service of the supplemental petition, regardless of whether an initial answer was filed.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 148.7 and 6620, Labor Code.

HISTORY

1. New section filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

### § 392.4. Motions During Reconsideration Process.

(a) Any motion or request for action, any opposition thereto, and any reply relating to any proceeding under reconsideration by the Appeals Board shall be in writing and directed to the Appeals Board's Sacramento office. The caption of each motion, request, opposition or reply shall contain the title and docket or petition number of the proceeding and a clear and plain statement of the relief sought, together with the grounds therefor.

(b) Any motion or request, or opposition thereto, and any reply shall be signed by the party filing or by the party's representative, and a copy shall be served on all parties. Service shall be in the manner prescribed in Section 355(c) and proof of service meeting the requirements of Section 355(c) shall be filed with the Appeals Board.

(c) Unless otherwise ordered, a motion or request may be served and filed at any time after reconsideration has been granted, but no later than 45 days before the date set forth in subsection (1) below:

(1) The Appeals Board shall notify the parties at least 90 days prior to the last day for making motions or requests relating to any proceeding under reconsideration.

(2) A motion or request shall be served and filed no later than 45 days before the date specified by the Appeals Board in 392.4(c)(1).

(3) Any opposition to such motion or request shall be served and filed no later than 30 days from service of the motion or request.

(4) Any reply papers shall be served and filed no later than 15 days from service of the opposition papers.

(d) A request to file a motion, request, opposition or reply later than the times specified in 392.4(c) may be granted in the Appeals Board's discretion if accompanied by a declaration showing good cause for the late filing.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 6617 and 6620, Labor Code.

HISTORY

1. New section filed 11–26–2007; operative 12–26–2007 (Register 2007, No. 48).

### § 392.5. Availability of Recording Media.

(a) The Appeals Board shall promptly provide a copy of the recording of the hearing to any requesting party upon receipt of a written request. The request may be made in person, by mail, or by facsimile.

(b) A party may request that the recording copy be sent via overnight delivery.

(c) The requesting party shall bear the cost of reproduction and delivery.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Sections 149.5, 6621 and 6629, Labor Code.

HISTORY

1. New section filed 10–30–92; operative 11–30–92 (Register 92, No. 44).
2. Amendment of section heading and section filed 11–26–2007; operative 12–26–2007 (Register 2007, No. 48).

### § 393. Oral Argument on Reconsideration; Amicus Curiae Briefs; Taking of Additional Evidence by Submission.

(a) The Appeals Board may, at the request of a party or on its own motion, hear oral argument before the Board. The Appeals Board need not grant oral argument in any case, but may request argument in cases in which, in its judgment, oral argument may be helpful in deciding issues important to the administration of Division 5 of the Labor Code. Oral argument shall not be ordered if either the Division or the employer notifies the Appeals Board in writing that it declines to participate within 10 days of the issuance of the request for oral argument.

(b) The Appeals Board may designate specific issues to be addressed. The Appeals Board shall, within a reasonable time before the oral argument is to take place, notify all parties and intervenors of the date, time, and place for which oral argument has been set and the issues to be heard.

(c) The Appeals Board may request the filing of briefs either before or after oral argument by issuance of an order in writing, or at oral argument may order the filing of briefs on the record of the oral argument.

(d) Should either party fail to appear for oral argument, the party present may be allowed to proceed with its argument.

(e) A brief of an amicus curiae (amicus) may be filed only by leave of the Appeals Board. The brief shall be filed within the time allowed for the filing of the answer or brief of the party whose position the amicus

will support unless the Board grants leave for filing at a later date specified by the order of the Appeals Board. Unless otherwise ordered, an amicus may not file a responding brief.

(f) An amicus will not be permitted to participate in oral argument without leave of the Appeals Board. An amicus may move no later than 10 days before oral argument is scheduled to participate in oral argument. Its motion shall identify its interest and state the reasons its participation would be helpful. Any opposition to the motion of an amicus to participate in oral argument shall be filed and served no later than 5 days before the date of oral argument.

(g) When reconsideration has been granted, either by petition or on the Appeals Board's own motion, the Appeals Board may request that additional evidence be submitted. Notice and an opportunity to respond to the request shall be given to all parties.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7, 149.5 and 6620, Labor Code.

HISTORY

1. Amendment of section heading, new subsections (a)–(f) and designation of existing section as subsection (g) filed 8–16–99; operative 9–15–99 (Register 99, No. 34).

### § 394. Taking of Additional Evidence by Further Hearing.

(a) When reconsideration has been granted either by petition or on the Appeals Board's own motion, the Appeals Board may order that additional evidence be taken at a further hearing. Notice of the time and place of further hearing shall be given to all parties and to such other persons as the Appeals Board may direct.

(b) The issues on further hearing shall be limited to those set forth in the order.

(c) The time limit at Section 385(a) for filing an order or decision shall not apply to further hearings during reconsideration.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 149.5 and 6620, Labor Code.

HISTORY

1. Amendment of NOTE filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).

## Article 6. Employers' Cost Recovery

### § 395. Application of Article.

This article shall apply to all petitions for costs to the Appeals Board brought pursuant to Section 149.5 of the Labor Code.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Section 149.5, Labor Code.

HISTORY

1. New Article 6 (Sections 395–397) filed 2–13–80; effective thirtieth day thereafter (Register 80, No. 7).

### § 396. Definitions.

As used in Sections 395 to 397, inclusive, of these rules:

(a) "Burden of proof" means the burden on an employer petitioning for costs to establish by a preponderance of the evidence that the issuance of a citation was the result of arbitrary or capricious action or conduct by the Division.

(b) "Citation is withdrawn" means that after an employer has filed an appeal in accord with Section 359, and the Appeals Board has acknowledged jurisdiction, that the Appeals Board grants the Division's motion or petition to withdraw the citation.

(c) "Final decision" means a decision or order of the Appeals Board or an Administrative Law Judge which has not been stayed or from which no petition for reconsideration has been filed or no reconsideration has been granted on the Appeals Board's own motion within the time permitted by law. If the Appeals Board has granted reconsideration, a decision or order shall be final 30 days after the decision after reconsideration has been issued unless a writ of mandate has been filed as provided by law. If a writ of mandate has been filed, a decision or order shall be final after a judgment has been entered and no appeal is pending in the courts.

(d) "Prevails in the appeal" occurs when an employer has prevailed in the appeal on an item of a citation or a total citation. An employer who appeals the existence of a violation shall not be deemed to have prevailed in the appeal if the alleged violation is affirmed and the Appeals Board only amends the classification of the violation or reduces the amount of proposed civil penalty.

(e) "Reasonable costs" means costs necessarily incurred by an employer in preparing for and pursuing an appeal of a citation. Reasonable costs are those costs allowed under Section 149.5 of the Labor Code, including attorney's fees, consultant's fees, witness' fees and mileage, costs of discovery, costs of depositions, and costs of service of process if such costs were necessary disbursements for preparing and proceeding with a hearing on the citation. Determination of the appropriateness of an award of costs lies within the discretion of the Appeals Board. Where a citation covers more than one item, costs shall be apportioned to each item.

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Section 149.5, Labor Code.

HISTORY

1. Amendment filed 6–5–80; effective thirtieth day thereafter (Register 80, No. 23).
2. Amendment filed 2–1–84; effective thirtieth day thereafter (Register 84,No. 5).

### § 397. Petition for Costs Procedures.

(a) Any employer who appeals a citation resulting from an inspection or investigation conducted on or after January 1, 1980, issued by the Division for violation of an occupational safety and health standard, rule, order, or regulation established pursuant to Chapter 6 (commencing with Section 140) of Division 1 of the Labor Code may file a petition for costs together with a memorandum of items of cost with the Appeals Board to claim reasonable costs, not to exceed five thousand dollars ($5,000) in the aggregate per citation if either the employer prevails in the appeal or the citation is withdrawn, and the employer alleges that the issuance of the citation was the result of arbitrary or capricious action or conduct by the Division. The burden of proof shall be on the employer to establish by a preponderance of the evidence that the issuance of the citation was the result of arbitrary or capricious action or conduct by the Division.

(b) The procedures are:

(1) If an employer who appeals a citation prevails in the appeal of the citation or the citation is withdrawn and the employer wishes to claim reimbursement for reasonable costs alleging that the issuance of the citation was the result of arbitrary or capricious action or conduct by the Division, the employer shall file a petition for costs together with a memorandum of items of cost with the Appeals Board. The petition must be filed not more than 60 days after the filing of a final decision granting the Division's motion or petition to withdraw the citation, or a final decision granting the appeal. A petition for costs shall be deemed filed on the date it is delivered or mailed to the Appeals Board in Sacramento, California. A petition for costs shall set forth specifically and in full detail the grounds upon which the employer's claim is made and identify the particular item or items of the citation for which the petition for costs is being filed. A petition for costs shall be verified upon oath in the manner required for verified pleadings in courts of record.

(2) Upon receipt of a petition for costs, the Appeals Board shall enter a petition number on the petition and serve a copy on the Division. The Division shall have 30 days from the service of a petition for costs to file a response with the Appeals Board.

(3) The Appeals Board shall review the petition for costs, and the response, if any, and shall by order or notice exercise one of the following three options:

(A) The petition for costs may be summarily dismissed if no grounds are set forth or there are insufficient facts alleged to establish that the citation was issued as a result of arbitrary or capricious action or conduct by the Division. The employer may file a petition for reconsideration of the cost order denying the petition for costs within 30 days after issuance of a cost order. Petitions for reconsideration and answers, if any, shall be in conformity with Article 5 of these rules, or

(B) The petition for costs may be granted by a cost order and costs may be awarded if from a review of the petition for costs and the response submitted, if any, it is established that the Division issued a citation as the result of arbitrary or capricious action or conduct. The Division and the employer shall have the right to file a petition for reconsideration of the cost order granting the petition for costs within 30 days after service of such an order. Petitions for reconsideration and answers, if any, shall be in conformity with Article 5 of these rules, or

(C) If a review of the petition for costs and response, if any, establishes that a factual dispute exists, the matter shall be set for hearing. Parties shall receive not less than 15 days notice of hearing.

(4) If a hearing is ordered, the Division and employer shall have their cases prepared, discovery completed and be ready to proceed at the time of hearing. Ten calendar days before the time of hearing, an employer may file with the Appeals Board and the Division a supplemental memorandum of costs setting forth necessary disbursements claimed. When a party desires to present any point which requires a consideration of a prior hearing record, the party shall, prior to the hearing, request and pay the cost of preparing the prior hearing record.

(5) A hearing shall be conducted in accord with these rules.

(6) A cost decision shall be filed as provided in Section 385. A copy of the cost decision with a summary of the evidence received and relied upon and the reasons or grounds upon which the decision was made shall be mailed or served on each party or his representative together with a statement informing the parties of the right to petition the Appeals Board for reconsideration of the cost decision within 30 days after the service of the cost decision. Petitions for reconsideration and answers, if any, shall be in conformity with Article 5 of these rules.

NOTE: Authority cited: Section 148.7, Labor Code. Reference: Section 149.5, Labor Code.

HISTORY

1. Amendment of subsection (b) filed 6–5–80; effective thirtieth day thereafter (Register 80, No. 23).
2. Amendment of subsection (b) filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).
3. Amendment of subsection (b)(3) and NOTE filed 10–30–92; operative 11–30–92 (Register 92, No. 44).

## Appendix A and Appendix B

NOTE: Authority cited: Sections 148.7 and 149.5, Labor Code. Reference: Sections 148.7 and 149.5, Labor Code.

HISTORY

1. New Appendix A and B filed 6–5–80; effective thirtieth day thereafter (Register 80, No. 23).
2. Repealer of Appendix A and B filed 2–1–84; effective thirtieth day thereafter (Register 84, No. 5).

* * *

*Barclays Official*

# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

## Chapter 3.5. Occupational Safety and Health Standards Board

Vol. 8

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# Chapter 3.5. Occupational Safety and Health Standards Board

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# Chapter 3.5. Occupational Safety and Health Standards Board

(Originally Printed 1-26-74)

## Subchapter 1. Rules of Procedure for Permanent Variances and Appeals from Temporary Variances

## Article 1. General

### § 401. Location of Principal Office.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. New Chapter 3.5 (Sections 401–427, not consecutive) filed 1–24–74 as an emergency; effective upon filing (Register 74, No. 4).
2. Certificate of Compliance filed 4–26–74 (Register 74, No. 17).
3. Repealer of Chapter 3.5 (Sections 401–427, not consecutive) and adoption of Chapter 3.5 (Sections 401–428, not consecutive) filed 5–31–74; effective thirtieth day thereafter (Register 74, No. 22).
4. Repealer of Chapter 3.5 (Sections 401–427, not consecutive) and adoption of Chapter 3.5 (Sections 401–428, not consecutive) refiled 6–7–74; effective thirtieth day thereafter (Register 74, No. 23).
5. Repealer filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
6. Amendment of subchapter heading filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

### § 402. Tenses, Gender and Number.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 10–22–82 by OAL pursuant to Government Code Section 11349.7(j) (Register 82, No. 43).
3. Editorial correction of printing error in HISTORY 1 (Register 94, No. 2).

### § 403. Definitions.

For the purpose of these rules:

(a) "Standards Board" or "Board" means the Occupational Safety and Health Standards Board; except that wherever the words "Standards Board" or "Board" alone are used, the power to act may be delegated by the Board and whenever the words "Board itself" are used, the power will be exercised by the Board acting through a quorum of its members;

(b) "Chairperson" means the member of the Standards Board designated by the Governor to hold the office of chairperson;

(c) "Hearing Officer" means any person appointed by the Standards Board to preside over any variance or appeal from a temporary variance hearing or to hear and determine any such matter within the jurisdiction of the Standards Board;

(d) "Department" means the Department of Industrial Relations;

(e) "Division" means the Division of Occupational Safety and Health;

(f) "Appeals Board" means the Occupational Safety and Health Appeals Board;

(g) "Code" means the Labor Code;

(h) "Rule" means any section set forth in this subchapter adopted by the Standards Board;

(i) All terms which are defined in the code shall be construed as defined therein.

(j) "Representative" means any person, including an authorized employee representative, authorized by a party or intervenor to represent the party or intervenor in a proceeding. Unless the context otherwise requires the term "representative" is included in the words "appellant," "party," "petitioner," "employer" or "employee."

(k) "Authorized employee representative" means a labor organization which has a collective bargaining relationship with an employer and which represents affected employees or an employee organization which has been formally acknowledged by a public agency as an employee organization that represents employees of the public agency.

(*l*) "Affected Employee" means an employee of the employer seeking the variance who is exposed, as a result of his/her assigned duties, to the condition or hazards covered by the standard from which the variance is sought.

(m) "Proceeding" means any proceeding before the Standards Board or before a hearing officer relating to a permanent or interim variance or appeal from a temporary variance.

(n) "Employer" means (1) the State and every State agency; (2) each county, city, district and all public and quasi-public agencies therein; (3) every person, including any public service corporation which has any natural person in service; (4) any Conveyance Owner as defined in subsection (o); and (5) any employer who employs "affected employees" as defined by Rule 403(*l*).

(o) "Conveyance Owner" means a person or entity that has custody of a conveyance covered by the Elevator Safety Orders, or that owns property on or in which such a conveyance is to be installed.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143 and 143.2, Labor Code.

HISTORY

1. Amendment of subsections (c), (e) and (m) filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, Title 1, California Code of Regulations amending subsections (b), (j) and (*l*) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Amendment of subsections (a) and (n), new subsection (o) and amendment of NOTE filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

### § 404. Computation of Time.

In computing the time within which any act must be performed, "days" shall refer to calendar days. The first day shall be excluded and the last day shall be included. If the last day is a Saturday, Sunday or holiday, the required act must be performed by the following Monday, or if that Monday is a holiday, by the next day that is not a holiday.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143 and 143.2, Labor Code; and Sections 12 and 12(a), Code of Civil Procedure.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of section and NOTE filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

### § 404.1. Late Filing.

Unless otherwise specified in the code, the time for filing any application, appeal, petition, answer, pleading, brief, or other document to the Standards Board may be extended or a late filing permitted upon a showing of good cause.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.2 and 6455, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).

### § 405. Hearing Officers.

All hearings of the Standards Board relating to permanent or temporary variances shall be conducted by hearing officers on the staff of the Appeals Board or appointed by the Standards Board.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations filed 2–25–91; operative 3–27–91 (Register 91, No. 14).

### § 405.1. Authority of Hearing Officers.

(a) Every hearing in a variance or appeal from a temporary variance proceeding shall be presided over by a hearing officer.

(b) When the Standards Board or a hearing panel hears the matter, the hearing officer shall preside at the hearing, rule on the admission and exclusion of evidence, and advise the Board or panel on matters of law; the Board or panel shall exercise all other powers relating to the conduct of the hearing but may delegate all or any of them to the hearing officer. When the hearing officer alone hears a matter, the hearing officer shall exercise all powers relating to the conduct of the hearing.

(c) A hearing officer or Standards Board member shall voluntarily disqualify himself/herself and withdraw from any case in which he/she cannot accord a fair and impartial hearing or consideration.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143, 143.1, 143.2 and 6457, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsections (b) and (c) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Amendment of subsection (b) and amendment NOTE filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

### § 405.2. Standards Board Records Not Subject to Subpoena.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 10–22–82 by OAL pursuant to Government Code section 11349.7(j) (Register 82, No. 43).
3. Editorial correction of printing error in HISTORY 2 (Register 94, No. 2).

### § 406. Party Status.

(a) Affected employees and/or an authorized employee representative may elect to participate as parties at any time before the commencement of the hearing, unless, for good cause shown, the Standards Board allows such election at a later time.

(b) The Division shall be deemed a party to all variance proceedings before the board, whether or not the division has appeared or participated in the proceeding and shall be entitled to receive the same service and notice as any other party.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.1, 143.2 and 147, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of subsection (a) filed 7–1–2002; operative 7–31–2002 (Register 2002, No. 27).

### § 406.1. Intervention; Appearance by Nonparties.

(a) A petition for leave to intervene may be filed at any stage of a proceeding before commencement of the hearing.

(b) The petition shall set forth the interest of the petitioner in the proceeding and show that the participation of the petitioner will assist in the determination of the issues and questions, and that the intervention will not unnecessarily delay the proceeding.

(c) The Standards Board may grant a petition for intervention to such an extent and upon such terms as the board shall determine.

(d) Any person whose petition for intervention has been granted shall be entitled to all notices to which parties are entitled.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).

### § 407. Service and Notice.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.1 and 143.2, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

### § 407.1. Proof of Service by Parties.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.1 and 143.2, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

### § 407.2. Responsibilities of Employers to Notify Employees of Proceedings.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.1 and 143.2, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

### § 407.3. Responsibilities of Employees to Notify Employers and Other Employees of Proceedings.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 6455, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

## Article 2. Applications for Permanent Variances and Appeals from Temporary Variances

### § 411. Applications for Permanent Variances.

(a) Any Employer desiring a permanent variance from an occupational safety or health standard, regulation or order contained in California Code of Regulations, Title 8 shall file a written application for a variance, submitted under penalty of perjury, with the Standards Board.

NOTE: See Rule 403(n) for definition of Employer.

(b) Six copies of the application for variance shall be submitted and shall include:

(1) The name and address of the Employer;

(2) The address(es) where the variance will be in effect;

(3) A description of the conditions, practices, means, methods, operations, or processes used or proposed to be used by the Employer to provide health and safety equal or superior to that provided by the regulations;

(4) A statement showing how the conditions, practices, means, methods, operations, or processes used or proposed to be used would provide health and safety equal or superior to that provided by the regulation from which a variance is sought;

(5) A certification that the Employer will comply with the notification and posting requirements contained in Rules 411.2 and 411.3 below;

(6) A specification of the Title 8 regulation from which the permanent variance is sought, including the appropriate subsections, if applicable;

(7) A statement of whether or not an appeal has been filed or is pending with the Occupational Safety and Health Appeals Board relative to the same safety order, including the Occupational Safety and Health Appeals Board docket number.

(8) A statement estimating the number of witnesses to be called by the Employer at the hearing and of the amount of time the Employer will require to present its case at the hearing; and

(9) Six copies of any photographs, blueprints or other illustrative materials submitted to document or clarify the application.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143, 143.1, 143.2 and 146, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).

2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsection (a)(5) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Editorial correction of printing error in subsection (a) (Register 94, No. 2).
4. Amendment of article heading, section heading and section filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

### § 411.1. Denial of Defective Application for Permanent Variance.

An application for permanent variance that fails to comply with rule 411 shall not be docketed or considered by the Board. Employers shall be advised of the application's defective areas and requested to correct or resubmit the application in accordance with the Board Rules. Failure to correct or resubmit the application in accordance with the Board Rules within 60 days shall result in automatic denial of the application. A denial of the application pursuant to this Rule shall be without prejudice to the filing of another application.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of section heading and section filed 7–1–2002; operative 7–31–2002 (Register 2002, No. 27).

### § 411.2. Compliance with Notification and Posting Requirements Regarding Variance Proceedings and Temporary Variance Appeals.

The notification and posting requirements contained in Sections 411.3 and 412.2 shall be satisfied as follows:

(a) Notification to a party who has appeared through a representative shall be made through such representative. Notification to an authorized employee representative shall be in addition to providing notice to the affected employees.

(b) Unless otherwise ordered, notification may be provided by postage–prepaid first class mail or by personal delivery. Notification is deemed effective at the time of mailing or personal delivery.

(c) Proof of notification or posting by parties may be made by any of the following means:

(1) Affidavit of service;

(2) Written statement endorsed upon the document served and signed by the party making the statement; or

(3) Letter of transmittal.

(d) Proof of notification or posting shall be submitted to the Board no later than the second working day following the posting or notification.

NOTE: Authority cited: Sections 143.2 and 6457, Labor Code. Reference: Sections 143, 143.2 and 6457, Labor Code.

HISTORY

1. New section filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2). For prior history, see Register 2002, No. 27.

### § 411.3. Employer Posting and Notification Responsibilities.

Regarding Variance Proceedings and Temporary Variance Appeals.

(a) Employers shall post a copy of the following documents at the place(s) where notices to employees are usually posted. In lieu of posting, Conveyance Owners shall immediately provide copies of these documents to the building maintenance provider and to the maintenance provider for the conveyance.

(1) The docketed variance application or temporary variance appeal, or a statement giving a summary of the application or appeal that specifies where a copy may be examined. This posting shall occur immediately upon the Employer's receipt of the notice indicating that the variance application or appeal has been docketed.

(2) A notice contained in the application, or provided as a separate document but posted simultaneously with the application, informing affected employees of their right to:

(A) party status and to participate in the variance proceedings;

(B) inspect and copy all pleadings at a reasonable time; and

(C) petition the Standards Board for a hearing.

(3) A copy of the notice of hearing, which shall be posted immediately upon its receipt.

EXCEPTION: If the variance or appeal pertains to an elevator, escalator or other conveyance covered by the Elevator Safety Orders that is in a building that is under construction or otherwise unoccupied, and neither a maintenance provider for the conveyance nor a building maintenance provider has been retained or designated, the Conveyance Owner shall attest to these facts in its application. If a conveyance maintenance and/or building maintenance provider is retained or designated after the variance or appeal is requested, but before a hearing is held, the Conveyance Owner shall immediately comply with this section and shall inform the Board, in writing, of the actions taken to comply.

(b) In addition to complying with subsection (a), Employers shall provide any authorized employee representative with the following documents immediately upon their receipt:

(1) a copy of the docketed variance application or temporary variance appeal;

(2) a copy of the notice set forth in (a)(2);

(3) a copy of the notice of hearing.

(c) Where posting is required, such posting shall be maintained until the commencement of the hearing or until earlier disposition of the variance request or appeal.

NOTE: Authority cited: Sections 143.2 and 6457, Labor Code. Reference: Sections 143, 143.2 and 6457, Labor Code.

HISTORY

1. New section filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2). For prior history, see Register 2002, No. 27.

### § 411.4. Notice of Denial of Interim Variance.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 7–1–2002; operative 7–31–2002 (Register 2002, No. 27).

### § 412. Appeals from Temporary Variances.

(a) Any employer or other persons adversely affected by the granting or denial of a temporary variance by the Division may appeal the Division's decision to the Board.

(b) Such appeal from a temporary variance shall be in writing and shall include:

(1) The name and address of the appellant;

(2) The address of the place or places of employment involved;

(3) A specification of the temporary variance in question and of the standard or portion thereof from which the variance was allowed or denied and the grounds upon which it is based; and

(4) A statement of facts which shows that the appellant is either the affected employer or is a person adversely affected by the granting or denial of the temporary variance.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 6455, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Editorial correction of printing error in subsection (a) (Register 94, No. 2).

### § 412.1. Correction of Defective Appeal from a Temporary Variance.

If any variance appeal fails to state the grounds upon which it is based, the appellant shall be notified that it does not comply with the Standards Board rules and shall be granted fifteen days after the date of mailing of such notice within which to file an amended appeal. If within the time permitted the appellant fails to amend the appeal to conform with rule 412 the appeal shall be dismissed.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. Amendment of section heading filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Editorial correction of printing error (Register 94, No. 2).

### § 412.2. Notification Requirements for Employees Appealing Temporary Variances.

(a) Where an affected employee or an authorized employee representative appeals the granting or denial of a temporary variance, the employee or representative shall provide the Employer with a copy of the appeal for posting in the manner prescribed in Rule 411.3.

(b) An authorized employee representative who appeals the granting or denial of a temporary variance shall be responsible for serving any other authorized employee representative whose members are affected employees.

NOTE: Authority cited: Sections 143.2 and 6457, Labor Code. Reference: Sections 143, 143.2 and 6457, Labor Code.

HISTORY

1. New section filed 1-9-2003; operative 2-8-2003 (Register 2003, No. 2).

## Article 3. Prehearing Proceedings

### § 415. Referral of Variance Applications and Temporary Variance Appeals to the Division.

(a) Applications for variances and appeals from temporary variances relating to occupational safety and health standards filed with the Board in proper form will be promptly referred to the Division for evaluation.

(b) Hearings on applications for variances and appeals will be scheduled so that the Division's evaluation report will be available for presentation at the hearing.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 147, Labor Code.

HISTORY

1. Amendment filed 7-19-82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of section heading and section filed 7-1-2002; operative 7-31-2002 (Register 2002, No. 27).

### § 416. Publication of Variance Applications.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.1, Labor Code.

HISTORY

1. New NOTE filed 7-19-82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 7-7-87; operative 8-6-87 (Register 87, No. 29).

### § 417. Assignment to Hearing Panels.

(a) The chairperson may assign variance proceedings before the board to a hearing panel consisting of one or more members for hearing and preparation of a proposed decision in such form that it may be adopted as the decision in the case. Assignments by the chairperson of members on such hearing panels shall be rotated among the members with the composition of the members so assigned being varied and changed to assure that there shall never be a fixed and continued composition of members.

(b) A variance proceeding shall be heard and decided by the Standards Board itself at the request of any two members of the Standards Board.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. Amendment filed 7-19-82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations filed 2-25-91; operative 3-27-91 (Register 91, No. 14).

### § 417.1. Objection to Hearing Panel or Hearing Officer or Board Member.

(a) Any party may request, in writing, that a variance proceeding be heard by the board itself rather than by a hearing panel. Such a request must be accompanied by a showing of good cause and may be granted or denied at the discretion of the chairperson. The request must be made prior to, or upon receipt of, the notice of hearing and at least ten working days prior to the scheduled hearing date. Failure to provide a timely request will be sufficient grounds for denying the request. The hearing shall not be held until a determination is made on the party's request.

(b) Disqualification of Hearing Officer or Standards Board Member.

(1) Any party may request the disqualification of any hearing officer and/or Standards Board member by filing an affidavit, at least ten working days prior to the scheduled hearing date, stating with particularity the grounds upon which it is claimed that a fair and impartial hearing cannot be accorded.

(2) The name of the hearing officer and the hearing panel members shall be included in the notice of hearing served on all parties. If any change is made to the hearing panel and/or hearing officer assignments subsequent to service of the notice of hearing, the parties, whenever possible, shall be notified of such changes. If the parties are notified of such changes less than ten working days before the scheduled hearing, a party wishing to request a disqualification must make the request as soon as it learns of the new assignment(s). Under such circumstances, the request initially may be made orally, including by telephone, and shall be made to the board before the hearing is convened whenever possible. The request shall then be submitted in writing, in accordance with subsection (b)(1), as soon as possible, and no later than ten working days after the oral request is made. If the request to change the hearing panel and/or hearing officer assignments cannot be made prior to the beginning of the hearing because the parties were not notified of such assignments, or not notified in a timely manner, the request shall be made prior to the taking of evidence at the hearing. If an oral request is made on the record at the hearing and is fully explained at that time, a written request need not be submitted.

(3) The request to disqualify the hearing officer and/or a Standards Board member shall be determined by the Standards Board. In the case of a request to disqualify a Standards Board member, the individual member named in the request shall not participate in the disqualification decision pertaining to him or her.

(4) If a request to disqualify is made prior to the hearing being convened, the hearing shall not begin until a determination has been made on the party's request. If a party is unable to make its request prior to the convening of the hearing because it was not timely notified of the hearing panel and/or hearing officer assignments, the hearing will be held for the sole purpose of allowing the party to state its request on the record. The remainder of the hearing will be postponed until a determination on the request has been made.

(5) Failure to make a request to disqualify in accordance with the time specifications in this subsection is sufficient grounds for denying the request.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143 and 143.2, Labor Code.

HISTORY

1. Amendment filed 7-19-82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsection (a) filed 2-25-91; operative 3-27-91 (Register 91, No. 14).
3. Amendment filed 5-22-2000; operative 6-21-2000 (Register 2000, No. 21).

### § 417.2. Merger of Successive Variance Applications or Appeals.

If, at the time any variance application or appeal is filed, one or more prior applications or appeals by or involving the same employer and involving the same or similar issues have not been decided by the board or a hearing officer, such prior applications or appeals may, upon notice to the parties, be deemed merged into the last application or appeal filed, and the Standards Board may issue a single decision.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. Amendment filed 7-19-82; effective thirtieth day thereafter (Register 82, No. 30).

### § 417.3. Withdrawal of Variance Applications and Temporary Variance Appeals.

(a) A variance application or appeal may only be withdrawn by written request and before a final decision is issued by the Board. If such request is made, the Board shall issue a decision dismissing the appeal or application.

(b) A variance application or appeal so dismissed shall be reinstated by the board if the party files a written petition and shows therein that the request for withdrawal resulted from misinformation given by the Division, Appeals Board or Standards Board or from fraud or coercion. Any petition for reinstatement shall be made within 60 days after personal service or mailing of the decision dismissing the variance application or appeal, or, in the event of fraud, within 60 days after discovery of such fraud.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.2 and 6457, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Editorial correction of printing error in subsection (b) (Register 94, No. 2).
3. Amendment of section heading and subsection (a) filed 7–1–2002; operative 7–31–2002 (Register 2002, No. 27).

### § 417.4. Dismissal of Late Appeals.

If any appeal is not filed within the time permitted by the code or these rules, the board shall issue a decision dismissing the appeal unless the appellant shows good cause for late filing. If good cause is shown, the appeal shall be decided on the merits.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.2 and 6455, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).

### § 417.5. Dismissal of Variance Applications.

If an Employer fails to pursue its variance application after the application is docketed, or causes significant delay in the processing of its application, the Board will provide the Employer with written notice of the Board's intent to dismiss the application. Unless the Employer responds to the notice within 30 days from the date of service, and subsequently assists in the processing of the variance application, the Board may dismiss the application without prejudice.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143 and 143.2, Labor Code.

HISTORY

1. New section filed 7–1–2002; operative 7–31–2002 (Register 2002, No. 27).

### § 418. Pre–Hearing Requests for Action.

All requests for action by the Standards Board relating to any proceeding pending before the Board shall be made in writing and directed to the hearing officer assigned to the matter, or to the executive officer if a hearing officer has not been assigned. Each written request shall contain the variance docket number and shall indicate the type of relief sought. If a hearing officer has been assigned, the hearing officer may resolve such requests without the Board's involvement.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143 and 143.2, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of section heading, section and NOTE filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

### § 419. Consolidation of Proceedings.

Any number of proceedings may be consolidated for hearing or decision when the facts and circumstances are similar and no substantial right of any party will be prejudiced.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Section 143.2, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).

### § 420. Pre–Hearing Conference.

(a) At any time before a hearing, the Standards Board or the hearing officer may, on its own initiative, or at the request of a party, direct the parties or their representatives to exchange information or to participate in a pre–hearing conference for the purpose of considering matters which will tend to simplify the issues or expedite the proceedings. If a hearing officer has been assigned, the hearing officer may resolve such requests without the Board's involvement.

(b) The Standards Board or the hearing officer may issue a prehearing order which includes the agreements reached by the parties. Such order shall be served on all parties and shall be a part of the record.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143 and 143.2, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of section heading, section and NOTE filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

## Article 4. Hearings and Decisions

### § 421. Time and Place of Hearing.

(a) Variance appeals from temporary variances shall be given scheduling priority over variance applications.

(b) Applications for variances shall be scheduled for hearing as soon as practicable after receipt.

(c) Except as hereinafter provided, the Standards Board may set the time and place of hearing at its principal office or at another location designated by the Board that is more convenient for the applicant.

(d) Where, because of the distance involved or for other reasons, it is impractical for parties and their witnesses to appear at the same place of hearing, a videoconference hearing may be scheduled.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.2, 147 and 6457, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of subsections (c) and (d) filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 422. Witnesses and Subpoenas.

(a) A party shall arrange for the presence of his/her witnesses at a hearing in a variance proceeding.

(b) A subpoena may be issued by the Standards Board or a hearing officer on the board's or hearing officer's own motion.

(c) A subpoena to compel the attendance of a witness shall be issued by the hearing officer upon request made by a party and a showing of the need therefor.

(d) An application for subpoena duces tecum for the production by a witness of books, papers, correspondence, memoranda, or other records, including records of the Division, shall be made by affidavit to the hearing officer and shall give the name and address of the person to be subpoenaed, shall describe the matters or things desired to be produced and show the materiality thereof to the issues involved in the proceeding and that, to the best of the applicant's knowledge, the witness has such matters or things in his/her possession or under his/her control.

(e) If the hearing officer finds that the affidavit is complete and supports the application for the subpeona duces tecum, the hearing officer shall issue the requested subpoena.

(f) Each party shall arrange for the service of all subpoenas, including subpoenas duces tecum, issued to the party. A copy of the affidavit for subpoenas duces tecum shall be served with such subpoena.

NOTE: Authority cited: Section 143.2, Labor Code; and Section 11400.20, Government Code. Reference: Sections 143.2 and 6457, Labor Code; and Section 11450.20, Government Code.

HISTORY

1. Amendment of subsection (d) filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsections (a), (d) and (e) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Editorial correction of printing error in subsection (e) (Register 94, No. 2).
4. New subsection (e), subsection relettering, amendment of newly designated subsection (f) and amendment of NOTE filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 422.1. Confidential Evidence.

(a) Any exhibit or evidence that contains, or that might reveal, a trade secret as defined in Civil Code Section 3426.1 shall be considered confidential. The Board shall take such appropriate action that is within its control to protect the confidentiality of trade secrets.

NOTE: Authority cited: Section 143.2, Labor Code; and Section 6254(k), Government Code. Reference: Sections 143.2 and 6457, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsections (a) and (b) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Amendment of section heading, repealer and new section and amendment of NOTE filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 423. Conduct of Hearing.

(a) Testimony shall be taken only on oath, affirmation, or penalty of perjury.

(b) Each party shall have these rights: To call and examine parties and witnesses; to introduce exhibits; to question opposing witnesses and parties on any matter relevant to the issues even though that matter was not covered in the direct examination; to impeach any witness regardless of which party first called him/her to testify; and to rebut the evidence against him/her.

(c) The Standards Board members or hearing officer may question any party or witness and may admit any relevant and material evidence.

(d) The taking of evidence in a hearing shall be controlled by the hearing officer in the manner best suited to ascertain the facts and safeguard the rights of the parties. Prior to taking evidence, the hearing officer shall explain the issues and the order in which evidence will be received.

(e) The hearing shall be conducted in the English language. On the notice of hearing the Board shall notify each party of the right to an interpreter. A party or a party's witness who does not proficiently speak the English language shall be provided an interpreter if a request for language assistance is provided to the Board at least ten working days prior to the date of the hearing. A party may provide its own interpreter, if the interpreter is approved by the hearing officer as proficient in the English language and the language in which the witness will testify. The hearing officer shall approve any person whose name appears on the current list of interpreters published by the State Personnel Board. The interpreter shall not have any involvement in the issues of the case prior to the hearing.

(f) The cost of the interpreter shall be paid by the Standards Board if the hearing officer so directs, otherwise by the party requiring the interpreter. This determination shall be made consistent with Government Code Section 11435.25(b).

NOTE: Authority cited: Section 143.2, Labor Code; and Section 11400.20, Government Code. Reference: Sections 143.2 and 6457, Labor Code; and Sections 11425.10, 11435.15, 11435.20, 11435.25, 11435.30, 11435.55, 11435.60 and 11435.65, Government Code.

HISTORY

1. Amendment of subsection (e) filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsection (b) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Editorial correction of printing error in subsection (d) (Register 94, No. 2).
4. Amendment of subsections (e) and (f) and amendment of NOTE filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 424. Evidence Rules.

The hearing need not be conducted according to technical rules relating to evidence and witnesses. Any relevant evidence shall be admitted if it is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs, regardless of the existence of any common law or statutory rule which might make improper the admission of such evidence over objection in civil actions. Hearsay evidence may be used for purpose of supplementing or explaining other evidence but shall not be sufficient in itself to support a finding unless it would be admissible over objection in civil actions. The rules of privilege shall be effective to the extent that they are otherwise required by statute to be recognized at the hearing, and irrelevant and unduly repetitious evidence shall be excluded.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 146 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).

### § 424.1. Official Notice.

(a) In reaching a decision, official notice may be taken, either before or after submission of the case for decision, of any generally accepted technical or scientific matter within the field of occupational safety and health, and determinations, rulings, orders, findings and decisions, required by law to be made by the Division, the Appeals and the Standards Board.

(b) The Standards Board shall take official notice of those matters set forth in Sections 451 and 452 of the Evidence Code.

(c) Each party shall be given reasonable opportunity to present information relevant to (1) the propriety of taking official notice, and (2) the tenor of matters to be noticed.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 451 and 452, Evidence Code; and Sections 143.2 and 6457, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Editorial correction of printing error in subsection (a) (Register 94, No. 2).
3. Amendment of section heading and amendment of subsections (b) and (c) filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 424.2. Continuance of Hearings and Further Hearings.

(a) The Standards Board may continue a hearing to another time or place on its own motion or may order further hearing on a matter at any time prior to the issuance of the Board's decision. Written notice of the time and place of the continued hearing shall be in accordance with Rule 411.2.

(b) Any party may request a continuance or further hearing, but such requests are disfavored and shall only be granted upon a clear showing of good cause. The parties are expected to submit for decision all matters in controversy and all necessary evidence at a single hearing.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.2 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 424.3. Representation at Hearing.

(a) Employers must attend the variance hearing, either in person or through a representative. The representative does not need to be an attorney–at–law.

(b) A representative of a party shall be deemed to control all matters respecting the interest of such party in the proceeding.

(c) Affected employees who are represented by an authorized employee representative may appear through such authorized employee representative.

(d) Withdrawal of appearance of any representative may be effected by filing a written notice of withdrawal with the Board.

(e) The Standards Board or hearing officer may refuse to allow any person to represent a party in any hearing when such person engages in unethical conduct or intentionally fails to observe the provisions of the code, proper instructions or orders of the Standards Board or these rules.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143, 143.1, 143.2, 146 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of subsections (a) and (d) filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 424.4. Exclusion of Witnesses.

Upon a demonstration of good cause by any party, the Standards Board, in its discretion, may exclude from the hearing room any witnesses not under examination at this time; but a party to the proceeding, and the party's counsel or representative cannot be excluded.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.2 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsection (b) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Editorial correction of printing error (Register 94, No. 2).
4. Amendment filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 424.5. Oral Arguments and Briefs.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.2 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 425. Judicial Enforcement.

(a) If any witness refuses to attend or testify or produce any papers required by a subpoena issued by the Standards Board, any party may file with the board a petition for judicial enforcement. The petition shall be verified and shall set forth that due notice of time and place of attendance of the person or the production of the papers has been given, that the person has been subpoenaed in the manner prescribed by law or these rules and that he/she has failed and refused to attend or produce the papers required by subpoena before the officer in the case or proceeding named in the subpoena, or has refused to answer questions propounded to him/her in the course of the hearing.

(b) If the Standards Board determines that judicial enforcement is appropriate it will petition the superior court in the county in which the hearing is pending for an order compelling the person to attend and testify or produce the papers pursuant to Government Code Sections 11186 through 11188, inclusive.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.2 and 6457, Labor Code; and Sections 11186–11188, Government Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsection (a) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Editorial correction of printing errors in subsection (b) and HISTORY 1 (Register 94, No. 2).

### § 425.1. Witness Fees.

Witnesses subpoenaed for any hearing are entitled to fees and mileage as set forth in Sections 11450.40 and 68093 of the Government Code.

NOTE: Authority cited: Section 143.2, Labor Code; and Section 11400.20, Government Code. Reference: Sections 143.2 and 6457, Labor Code; and Sections 11450.40 and 68093, Government Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of section and NOTE filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 425.2. Failure to Appear.

(a) Where it appears on record that a party was served with notice of hearing, but fails to appear at such hearing, either in person or by representative, the Standards Board may take the proceeding off calendar; may, after notice, dismiss the proceeding; or may hear the evidence from any party that attends the hearing and, after notice, make such decision as is just and proper.

(b) Any proceeding may be reinstated by the Board, at its discretion, if a non–appearing Employer submits to the Board, in writing, a reasonable explanation for the Employer's failure to appear at the hearing. The explanation must be submitted within ten days after service of the notification of intent to dismiss.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.2 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of section heading and section filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 426. Decision; Action on Proposed Decision.

(a) A variance hearing may be held before the Standards Board itself, a hearing panel or a hearing officer. If a proceeding is heard before the Standards Board itself or a hearing panel, the hearing officer, if requested, shall assist and advise them. Where a proceeding is heard before the Standards Board itself, no member of the Board who did not hear the evidence shall vote on the decision.

(b) If a proceeding is heard by a hearing panel or a hearing officer, the panel or hearing officer shall prepare a proposed decision in such form that it may be adopted by the Board as the decision in the proceeding. The proposed decision shall be a public record and a copy of the proposed decision shall be served by the Standards Board on each party. The Board may adopt the proposed decision or decide the case itself as provided in subdivision (c) below.

(c) If the proposed decision is not adopted as provided in subdivision (b), the Standards Board itself may decide the case upon the record, with or without taking additional evidence, or may refer the case to a hearing panel or hearing officer to take additional evidence.

(1) If the case is assigned to a hearing panel or hearing officer, the hearing panel or hearing officer shall prepare a proposed decision as provided in subdivision (b) based on the additional evidence and the record of the prior hearing. A copy of the proposed decision shall be furnished to each party as prescribed in subdivision (b).

(2) If the case is heard by the Standards Board itself, and the Board chooses to take additional evidence, the parties shall be afforded the opportunity to present either oral or written argument before the Board itself. If additional oral evidence is introduced before the Board itself, no Board member may vote unless the member heard the additional oral evidence.

NOTE: Authority cited: Section 143.2, Labor Code; and Section 11400.20, Government Code. Reference: Sections 143, 143.2 and 6457, Labor Code; and 11425.10, Government Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsection (d) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).
3. Amendment of section and NOTE filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 426.1. Form of Decision.

(a) The decision shall be in writing and shall contain findings of fact, the reasons for decision, and the decision. A copy of the decision shall be mailed to or served on each party or his/her representative.

(b) Any decision in a variance proceeding may be made subject to any reasonable conditions.

(c) After a decision or proposed decision has been mailed or served it shall not be changed except to correct clerical errors, in which case a corrected decision or proposed decision shall be prepared and mailed or served.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143, 143.2, 146 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Change without regulatory effect pursuant to section 100, title 1, California Code of Regulations amending subsection (a) filed 2–25–91; operative 3–27–91 (Register 91, No. 14).

### § 426.2. Notice of the Granting of a Permanent Variance or Variance Appeal.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143, 143.2 and 6457, Labor Code.

HISTORY

1. Amendment filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Repealer filed 7–7–87; operative 8–6–87 (Register 87, No. 29).

### § 427. Petitions for Re–Hearing.

(a) Petition for re–hearing may be filed by any party with the Standards Board within twenty (20) days after service of the decision upon the following grounds and no other:

(1) that the Standards Board acted without or in excess of its power;

(2) that the decision was not supported by substantial evidence; or,

(3) that the decision was contrary to law.

(b) Failure to file a petition for re–hearing within twenty days shall constitute valid grounds for denying the petition.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.1, 143.2 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. New subsection (b) filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 427.1. Form of Petition for Re–Hearing.

(a) The petition for re-hearing shall state in detail the factual or legal basis for granting the petition for re–hearing.

(b) The petition for re–hearing shall be denied if it only states the permissible grounds for re–hearing contained in Rule 427, unsupported by specific references to the record and an explanation of the petitioner's position.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.1, 143.2 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Editorial correction of printing error in HISTORY 1 (Register 94, No. 2).
3. New subsection (a) designator and new subsection (b) filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 427.2. Service of Petition for Re–Hearing.

The Board shall serve copies of the petition for re–hearing on all parties and interveners who have joined in the proceeding at the time that the petition is filed with the Standards Board.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.1, 143.2 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment of section heading and section filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 427.3. Re–Hearing.

(a) If a petition for re–hearing is submitted to the Board in a timely fashion, the Board may;

(1) grant the petition;

(2) affirm the Board initial decision on the variance;

(3) take no action on the petition, in which case it is deemed denied 30 days after receipt by the Board; or

(4) deny the petition and explain its basis for doing so.

(b) If the Board acts under subsection (a)(3), the Board shall notify the Employer of the denial after the 30 days have passed.

(c) If a re–hearing is granted, the Board may review the petition itself, or refer it to a hearing panel or hearing officer.

(d) The re–hearing may be based on the existing record, or the Board, hearing panel or hearing officer that hears the matter may request that additional testimony and/or written evidence be submitted.

(1) If further hearing is ordered, the Board shall issue a notice of hearing, and the Employer shall comply with the notification requirements contained in Rules 411.2(a)(3) and (b)(3).

(2) If the decision is to be based on the existing record, the Board may decide the matter without notice and without affording the parties further opportunity to testify or submit information.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.1, 143.2 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 427.4. Decision on Petition for Re–Hearing.

A decision issued on a re–hearing petition, shall be in the same manner and form as prescribed in Rule 426.1.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143.1, 143.2 and 6457, Labor Code.

HISTORY

1. New NOTE filed 7–19–82; effective thirtieth day thereafter (Register 82, No. 30).
2. Amendment filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26).

### § 428. Modifications to a Permanent Variance.

(a) A variance is valid only for the Employer to whom it is issued and only for the locations specified in the variance. If an Employer transfers ownership of the business to a different entity, the variance does not transfer to the new Employer.

(b) An Employer must seek to modify a variance if:

(1) the Employer wants to change the terms or conditions of an existing variance;

(2) the Employer wants to acquire the variance from the Employer to whom it was issued; or

(3) the Employer wants to add to or change the locations listed in the existing variance.

(c) Employers seeking to modify a permanent variance must comply with Rules 411–411.2 and must include the docket number of the variance to be modified in the application. An Employer may satisfy 411(b)(3) and (4) by stating that it will comply with the conditions contained in the existing permanent variance that is subject to modification.

NOTE: Authority cited: Section 143.2, Labor Code. Reference: Sections 143(d), 143.2 and 6457, Labor Code.

HISTORY

1. New section filed 6–26–2003; operative 7–26–2003 (Register 2003, No. 26). For prior history, see Register 87, No. 29.

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*Barclays Official*

# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

## Chapter 4. Division of Industrial Safety

### Subchapter 1. Unfired Pressure Vessel Safety Orders

Vol. 8

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# Subchapter 1. Unfired Pressure Vessel Safety Orders

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# Chapter 4. Division of Industrial Safety

## Subchapter 1. Unfired Pressure Vessel Safety Orders

(Originally Printed 4–20–45)

GENERAL NOTE

These Unfired Pressure Vessel Safety Orders were promulgated and adopted by the Industrial Safety Board for inclusion in Title 8, California Administrative Code, as Safety Regulations as authorized by Division 5, Chapter 3, Section 6500 of the California Labor Code.

It has been determined that certain of these orders are also applicable as Building Standards and those Sections approved by the State Building Standards Commission have been included in Title 24, California Administrative Code. Those regulations that have been designated as Building Standards have been printed in italics.

## Article 1. Scope of These Orders

### § 450. Application of the Unfired Pressure Vessel Safety Orders.

(a) These Orders apply to places of employment in California, and establish minimum standards for:

(1) The design, construction, and installation of LP–Gas containers, including the storage and handling of LP–Gas. National Fire Protection Association (NFPA) 58, LP–Gas Code, 1998 Edition, is hereby incorporated by reference. Supplementing NFPA 58 are these Safety Orders, beginning with Sections 470 through 494, which are determined necessary for the protection of the safety and health of employees.

(2) The design and construction of all other non–LP–Gas unfired pressure vessels.

(3) The installation, use, repair, and alteration of air tanks, LP–Gas and $NH_3$ tanks and systems.

(4) The inspection of and issuance of permits to operate for air and LP–Gas tanks.

(5) The design, construction, installation, use, repair, and alteration of pressure vessels for the storage and dispensing of natural gas as a motor fuel, except in vehicles that are licensed to travel on highways.

(6) The design, construction, repair and alteration of LNG, LPG and $NH_3$ storage tanks for operation at 15 psig or less.

(b) After the date on which these Orders become effective, all installations and equipment shall conform to these Orders, except as noted in Section 451.

EXCEPTION: Existing installations and equipment which were and remain in compliance with the Safety Orders, or variances therefrom, in effect at the time of manufacture or installation.

(c) When any provision of these Safety Orders conflicts with NFPA 58 and is more stringent than the corresponding Section of NFPA 58, the Safety Order shall take precedence.

NOTE: Authority cited: Section 142.3 Labor Code; and Section 13241, Health and Safety Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of Subchapter 1 and new Subchapter 1 (T8–450 through T8–467, 470 through T8–485, 488 through 494, T8–500 through T8–513, and T8–550) filed 7–17–70; effective thirtieth day thereafter (Register 70, No. 29). Approved by State Building Standards Commission 6–26–70. For prior history, see Registers 58, No. 38; 64, No. 9; and 68, No. 38.
2. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
3. Amendment of subsection (a) filed 3–29–74; effective thirtieth day thereafter (Register 74, No. 13).
4. Repealer of subsection (b) and new subsection (b) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).
5. Amendment of subsection (b) filed 7–6–79 as procedural and organizational; effective upon filing (Register 79, No. 27).
6. New subsection (a)(6) filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
7. Amendment filed 1–5–88; operative 2–4–88 (Register 88, No. 4).
8. Amendment of section and NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).
9. Amendment of subsections (a)(1) and (a)(6)–(c) filed 1–30–2002; operative 3–1–2002 (Register 2002, No. 5).

### § 451. Unfired Pressure Vessels Not Subject to These Safety Orders.

(a) Pressure vessels that are under the jurisdiction and inspection of the United States Government or are specifically exempted by the Labor Code.

(b) Pressure vessels subject to an internal or external pressure of not more than 15 psig except for those listed in Section 450(a)(5), with no limitation on size, and vessels having an inside diameter not exceeding 6 inches with no limitation on pressure. However, vessels excluded in this section shall be designed and constructed in accordance with recognized standards when applicable, or in accordance with good engineering practices for pressure vessel design using a factor of safety of at least 4, and shall be fitted with necessary controls and safety devices to permit safe operation.

(c) Natural gas vessels and installations and air brake tanks subject to the jurisdiction and inspection of the Public Utilities Commission, the Department of Transportation, or the Department of the California Highway Patrol, except as provided in Article 7 of these Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 7624, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsection (c) filed 3–29–74; effective thirtieth day thereafter (Register 74, No. 13).
3. Amendment of subsection (b) filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
4. Amendment filed 1–5–88; operative 2–4–88 (Register 88, No. 4).
5. Amendment of NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).
6. Amendment of subsection (c) filed 9–25–2002 as an emergency; operative 9–25–2002 (Register 2002, No. 39). A Certificate of Compliance must be transmitted to OAL by 1–23–2003 or emergency language will be repealed by operation of law on the following day.
7. Certificate of Compliance as to 9–25–2002 order, including further amendment of subsection (c), transmitted to OAL 1–17–2003 and filed 2–24–2003 (Register 2003, No. 9).

### § 452. Variances.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).
2. Repealer filed 1–5–88; operative 2–4–88 (Register 88, No. 4).

### § 453. Definitions.

The following definitions shall apply in the application and interpretation of these Orders.

For definitions directly relevant to LP–Gas, see 1998 Edition of NFPA 58, Section 1–6.

49 CFR: Title 49, Code of Federal Regulations, Parts 100–199.

Acceptable: Capable of performing the particular function specified in the Order with safety.

Air Brake Tank: An air tank 10 inches or less in diameter, having a capacity of 1 1/2 cubic feet or less, and operating at 150 psig or less, and used exclusively to supply air to the braking systems of automotive vehicles and other air–operated auxiliaries used in the operation of such vehicles. The 150 psig limitation need not apply to tanks less than 6 inches in inside diameter.

Air Tank: A pressure vessel used for the storage or accumulation of air under pressure. This definition is not intended to include utilization equipment, including such devices as grease tanks, fire extinguishers,

paint sprayers, etc., where the tank is partly filled with a product and the air pressure is used only for a cushion or to eject the product from the tank, or such devices as strainers, scrubbers, separators, etc., that are a part of the piping system.

Alteration: A change in any item described on the original Manufacturer's Data Report which affects the pressure capability of the pressure vessel.

ANSI Standards: Standards approved by the American National Standards Institute, Inc.

(A) Chemical Plant and Petroleum Refinery Piping, ANSI B31.3 (except non-metallic pipe such as plastic is not acceptable unless permitted by specific safety orders).

(B) Refrigeration Piping, ANSI B31.5.

Applicator Tank: A service tank used in agriculture for applying anhydrous ammonia to the soil, or for other agricultural uses.

Approved: See Section 3206, General Industry Safety Order.

Appurtenance: A device installed on and used in the normal operation of the vessel. This includes, but is not limited to, safety relief devices, liquid level gauging devices, valves, and pressure gauges.

Artificial Heat: Any heat other than solar or atmospheric heat.

ASME Code: The American Society of Mechanical Engineers' Boiler and Pressure Vessel Code.

(1) Power Boilers, Section I.

(2) Materials Specifications, Section II.

(3) Nuclear Power Plant Components, Section III, Division 1 and 2.

(4) Heating Boilers, Section IV.

(5) Non-destructive Examination, Section V.

(6) Recommended Rules for Care and Operation of Heating Boilers, Section VI.

(7) Recommended Rules for Care of Power Boilers, Section VII.

(8) Pressure Vessels, Section VIII, Division 1 and 2.

(9) Welding and Brazing Qualifications, Section IX.

(10) Fiberglass-Reinforced Plastic Pressure Vessels, Section X.

(11) Rules for Inservice Inspection of Nuclear Power Plant Components, Section XI.

(12) Power Piping, ASME B31.1 (except non-metallic pipe such as plastic is not acceptable unless permitted by specific safety orders).

(13) Pressure Vessel for Human Occupancy (PVHO), Safety Standard for Pressure Vessels for Human Occupancy.

ASTM: American Society for Testing Materials.

Brittle Failure: A pipe failure mode which exhibits no visible (to the naked eye) material deformation (stretching, elongation, or necking down) in the area of the break.

Bulk Plant:

$NH_3$, CNG, and LNG: An installation other than a dispensing unit, used to store the product for further transfer.

Bulk Storage: Storage in vessels other than DOT cylinders.

California Standard Tank: A tank built in accordance with the requirements for California standard tanks as set forth in the Air Pressure Tank Safety Orders in force at the time the tank was constructed.

Capacity: The gross capacity of a pressure vessel in U.S. Gallons. See "Water Capacity."

Certificate of Competency: Certification issued by the Division to persons who have satisfactorily passed the written boiler and pressure vessel inspector's examination prescribed by the Division.

Certificate of Resale Inspection: A certificate issued after a resale inspection and designating the maximum allowable working pressure for the tank when it is installed in compliance with these Orders. This certificate is not a permit to operate. This certificate shall expire not more than 5 years from date of inspection or when the tank is returned to service, whichever occurs first.

Certified Inspector: A person holding a valid certificate of competency issued by the Division in accordance with the Boiler and Fired Pressure Vessel Safety Orders.

CNG: Compressed natural gas. Natural gas that has been compressed for storage in containers.

Container Assembly: An assembly consisting essentially of the container and fittings for all container openings, including shutoff valves, excess flow valves, liquid-level gauging devices, safety relief devices, and protective housing.

Container: Any vessel, including tanks, cylinders, tubes, portable tanks and cargo tanks, used for transporting or storing any liquid or gas.

Dike: A concrete, metal, or compacted earth structure used to confine an accidental spill within an impounding area.

Dispensing Unit:

Natural Gas: A stationary natural gas installation other than a bulk plant from which CNG or LNG is dispensed into fuel tanks or portable cylinders from a storage tank, bank of cylinders, compressor, or a distribution gas pipeline.

Division: Division of Occupational Safety and Health.

DOT Service: Service in which a pressure vessel is used, inspected and maintained in accordance with DOT regulations.

DOT Specifications: Regulations of the Federal Department of Transportation published in 49 CFR Parts 100–199.

Ductile Failure: A pipe failure mode which exhibits material deformation (stretching, elongation, or necking down) in the area of the break.

Ductile Plastic Materials: Plastic materials able to withstand external impact from both blunt and sharp objects, while charged with compressed gas under the full rated pressure of the piping system, without brittle failure.

Existing Installations: All pressure vessels installed in California prior to the adoption date of these Orders and in compliance with applicable Safety Orders of the Division in effect at that time and that have not changed ownership and location since the adoption date of these Orders.

External Inspection: An inspection of all visible external surfaces and appurtenances of an installed pressure vessel.

Farm Cart: A vehicle for use on a farm on which is mounted a container of not over 1,200 gallons water capacity.

Field Inspection: An internal and/or external inspection of installed pressure vessels.

Fill, Filling:

(A) Filled by Pressure: A means of filling a pressure vessel whereby the quantity of compressed gas in the vessel at normal temperature is determined by a pressure gauge or gauges.

(B) Filled by Volume: A means of filling a tank or cylinder whereby the volume of liquid in the vessel is determined by measuring the liquid level.

(C) Filled by Weight: A means of filling a tank or cylinder whereby the amount of the product in the vessel is determined by weight.

Flammable Gas: A flammable gas is one with either of the following properties:

(A) At atmospheric pressure and temperature forms a flammable mixture with air when present at a concentration of 13 percent or less (by volume) or which forms a range of flammable mixtures with air wider than 12 percent regardless of the lower limit, or

(B) projects a flame more than 18 inches beyond the ignition source with valve opened fully, or the flame flashes back and burns at the valve with any degree of valve opening, when tested in the Bureau of Explosives' Flame Projection Apparatus.

Flammable Liquid: A flammable liquid is one that has a flash point above 20 degrees Fahrenheit to and including 80 degrees Fahrenheit as determined by Tagliabue's Open-Cup-Method. When the flash point is 20 degrees Fahrenheit or less it is termed an Extremely Flammable Liquid.

Gas: A form of matter having extreme molecular mobility and capable of diffusing and expanding rapidly in all directions.

Gas–Air Mixer: A device, or system of piping and controls, which mixes LNG vapor with air to produce a mixed gas of a lower heating value than the LNG.

GISO: Title 8, California Code of Regulations, Chapter 4, Subchapter 7, The General Industry Safety Orders.

Hazardous: A substance or circumstance which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, or otherwise harmful is likely to cause injury.

Important Building: A building in which there may be a source of ignition under normal operating conditions.

Impounding Area: An area used to contain an accidental liquid spill through the use of dikes and/or topography.

Installation.

(A) CNG and LNG: Includes natural gas pressure vessels, liquefiers, pumps, compressors and all attached valves, piping and appurtenances

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affecting the safety of the employment or place of employment. When filling directly from distribution lines by means of a compressor, the installation includes the compressor and all piping and piping components beyond the shutoff valve between the distribution system and the compressor.

(B) $NH_3$: Includes the pressure vessel and all attached valves and other appurtenances affecting the safety of the employment or place of employment.

Labeled: See "Approved."

Listed: See "Approved."

LNG: Liquefied Natural Gas. A fluid in the liquid state composed predominantly of methane and which may contain minor quantities of ethane, propane, nitrogen, or other components normally found in natural gas and in a cryogenic state.

Maximum Allowable Working Pressure: The pressure for which a tank was constructed, or if conditions have changed, the maximum pressure permitted at the last inspection by a certified inspector or qualified safety engineer.

Maximum Filling Density: The percent ratio of the weight of gas in the tank to the weight of water that the tank will hold. For determining the water capacity of the tank in pounds, the weight of a gallon (231 cubic inches) of water at 60 degrees Fahrenheit in air shall be 8.32828 pounds.

Metallic Hose: A hose in which the strength of the hose depends primarily upon the strength of metallic parts but it may have non-metallic liners and/or covers.

Mobile Fuel Tank: A vessel mounted on a vehicle or other readily portable device and used only to supply fuel to an internal-combustion engine or other equipment secured to the vehicle or device.

Mobile Storage Module: Assembly of a multiple number of tubes securely fastened within a framework structure and used in DOT service.

Mobile Storage Tank, MST: A tank installed on a trailer or semitrailer, and used temporarily to receive and store anhydrous ammonia. "Temporarily" means not more than 120 days.

Motor Fuel Tank: See Mobile Fuel Tank.

Natural Gas: Naturally occurring mixtures of hydrocarbon gases and vapors consisting principally of methane, either in gaseous or liquid form.

New Installations: All pressure vessels, other than existing installations, installed or reinstalled in a new location after the effective date of these Orders.

$NH_3$: The chemical notation of anhydrous ammonia, a chemical compound composed of nitrogen and hydrogen. It is normally stored and transported as a liquid under pressure. However, in some large storage facilities it is refrigerated and stored at atmospheric pressure.

Nurse Tank: A tank used in agriculture for off-highway service to deliver $NH_3$ from a transportation tank or storage tank to an applicator tank in the field.

Outage: That space required to be left in the vessel to provide for expansion of the liquid by an increase of temperature. For LNG outage is that space required to be left in vessels filled by volume to provide for separation of the vapors resulting from boil-off of the liquid and also to provide for the expansion of the liquid with increase of temperature.

Poison: A substance which when taken in small quantities or low concentrations by mouth, inhaled, or absorbed through the skin rapidly jeopardizes life by other than mechanical or physical action.

Portable Air Tank: An air tank mounted with an air compressor on a towed vehicle.

Portable LNG Tank: A service tank not exceeding 2,000-gallon water capacity used to transport LNG.

Portable $NH_3$ Tank: A service tank not exceeding 1200-gallons capacity used to transport anhydrous ammonia.

Pressure Vessel: An unfired container, including cylinders, used for the storage or accumulation of any gas or liquid under pressure. This definition is not intended to include pressure chambers that are integral parts of such devices as pumps, motors, engines, clothes presses, flatwork ironers, tire molds, etc., where the pressure-containing part is subjected to severe mechanical stresses.

Property Line: A line, imaginary or otherwise, separating a property from adjoining property of public or private ownership.

Pull Away Device: A device installed and anchored so that any tension exceeding the manufacturer's rating on the hose will cause the device to separate and prevent the LP-Gas to escape from both the upstream and downstream lines.

Qualified Person, Attendant, or Operator. A person designated by an employer who by reason of training and experience has demonstrated the ability to safely perform his/her duties and, where required, is properly licensed in accordance with federal, state or local laws and regulations. Reference G.I.S.O. 3207.

Qualified Inspector: Either a certified inspector or a qualified safety engineer.

Qualified Safety Engineer: A person who is qualified to make inspections or examinations of boilers or tanks according to the rules under which the vessel was constructed, and who holds a valid certificate of competency issued by the Division.

Receiving Vessel: A tank or cylinder into which a product is being charged.

Resale Inspection: The inspection of any used vessel to determine its allowable working pressure when reinstalled in accordance with these Orders.

Respiratory Protective Device (RPD): A breathing device designed to protect the wearer from a hazardous atmosphere.

SAE: Society of Automotive Engineers.

Second-hand Pressure Vessel: A used pressure vessel that has changed both ownership and location.

Service Valve: A valve connected directly to a vessel outlet not larger than 3/4-inch pipe size and having an inlet diameter not exceeding the internal diameter of 1/2-inch Schedule 80 pipe for applications other than LP-Gas.

Shop Inspection: Inspection of tanks in a fabricator's shop, or at the job site during erection, as required by the ASME Code.

Standard Dimension Ratios (SDR): A specific ratio of the average specified outside diameter to the minimum specified wall thickness (Do/t) for outside diameter-controlled plastic pipe, the value of which is derived by adding one to the pertinent number selected from the ANSI Preferred Number Series 10 contained in American Society for Testing and Materials (ASTM) Designation No. F412-87a (1987), Standard Definitions of Terms Relating to Plastic Piping Systems which is herein incorporated by reference.

Storage Tank: A tank permanently located and used to store a product or to supply a product to utilization equipment.

Suitable: See "Acceptable."

Surge Tank: See "Gas-Air Mixer."

Systems: An assembly of equipment and appurtenances consisting essentially of the container or containers, major devices such as vaporizers, safety relief valves, excess flow valves, regulators, and connecting piping.

Tank: A container, other than a cylinder in DOT service, used for the storage or accumulation of any liquid or gas under pressure. This definition is not intended to include pressure chambers that are integral parts of such devices as pumps, motors, engines, clothes presses, flatwork ironers, tire molds, etc., where the pressure-containing part is subjected to severe mechanical stresses.

Transportation Tank: A tank permanently installed on a truck, trailer, or semi-trailer used to transport a product over the highway.

Trap Tank (Trap Wagon): A tank mounted on wheels for off-highway use and having a capacity of 1200 gallons or less and used to transport LP-Gas from a storage tank to a mobile fuel tank.

Tube: A hollow product of round or any other cross-section having a continuous periphery.

NOTE: For CNG service, a tube is a seamless, cylindrical-shaped pressure container used in DOT service such as transport trailers.

UM: Unfired Miniature, as Defined in ASME Code Section VIII, Division 1.

Vapor Pressure: The pressure of the vapor (psig) in equilibrium with the liquid at a temperature of 100 degrees Fahrenheit.

Vaporizers:

LNG Vaporizer: A device used to convert LNG from the liquid to the gaseous state by means of artificial or atmospheric heat.

Ventilation–Adequate: When specified for the prevention of fire during normal operation, ventilation shall be considered adequate when the concentration of the gas in a gas–air mixture does not exceed 25 percent of the lower flammable limit.

Volumetric Filling: The amount of water, in either lb. or gal., at 60°F (15.6°C) required to fill a container full of water.

Weight FIlling: See "Filled by Weight."

WOG: Water, oil, or gas rating (as applied to valves and fittings).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 7622, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
3. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
4. Amendment filed 12–14–76; effective thirtieth day thereafter (Register 76, No. 51).
5. Amendment filed 6–15–79; effective thirtieth day thereafter (Register 79, No. 24).
6. Amendment filed 10–18–79; effective thirtieth day thereafter (Register 79, No. 42).
7. Amendment of subsection (a) filed 4–13–82; effective thirtieth day thereafter (Register 82, No. 16).
8. Amendment filed 1–5–88; operative 2–4–88 (Register 88, No. 4).
9. Amendment filed 2–15–90; operative 3–17–90 (Register 90, No. 8).
10. New definitions for "Brittle Failure," "Ductile Failure," "Ductile Plastic Materials" and "Standard Dimension Ratios" filed 4–8–92; operative 5–8–92 (Register 92, No. 18).
11. Amendment of section and NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).
12. Amendment of first two paragraphs filed 1–30–2002; operative 3–1–2002 (Register 2002, No. 5).

## Article 2. Design and Construction

### § 454. Design and Construction of Air Tanks.

(a) Except as permitted in Section 454 (b) all air tanks for new installations shall be constructed, inspected and stamped in compliance with the ASME Code (unless the design, material, and construction of the air tank are accepted by the Division as equivalent to the ASME Code) and, except for "UM" vessels, registered with the National Board of Boiler and Pressure Vessel Inspectors. The stamping on all new air tanks or on nameplates attached thereto shall show the head and shell thickness in addition to the stamping required by the ASME Code.

(b) Air tanks used for self–contained breathing apparatus may be constructed in accordance with the ASME Code or DOT specifications provided they are inspected and maintained as required by DOT specifications and do not exceed a volumetric capacity of 1 cubic foot.

(c) The allowable working pressure of any existing air tank shall be determined by the provisions of the ASME Code effective when the tank was manufactured and upon its condition; provided, however, that tanks constructed to other than ASME Code standards for air pressure service shall be calculated with a factor of safety of not less than 5.

(d) Air brake tanks shall be constructed in accordance with the ASME Code or SAE standard J–10b, 1981 Edition.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsection (a) filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14).
3. Amendment filed 1–5–88; operative 2–4–88 (Register 88, No. 4).

### § 455. Design and Construction of CNG and LNG Tanks.

(a) All CNG and LNG tanks for new installations over 15 psig shall be constructed, inspected, and stamped in compliance with the ASME Code (unless the design, material, and construction of the tank are accepted by the Division as equivalent to the ASME Code) and, except for "UM" vessels, registered with the National Board of Boiler and Pressure Vessel Inspectors. The stamping on all new tanks or on nameplates attached thereto shall include, in addition to the stamping required by the ASME Code or the National Board of Boiler and Pressure Vessel Inspectors, the following:

(1) CNG Tanks:

(A) The volumetric capacity in standard cubic feet of natural gas when filled to the limits provided by these regulations.

(B) The words "For CNG."

(C) The head and shell thicknesses.

(2) LNG Tanks:

(A) The net volumetric capacity in U.S. Gallons.

(B) The words "for LNG."

(C) The head and shell thicknesses.

(D) The minimum safety relief valve capacity in CFM air. (See 541 (c)(1) and (2)).

(b) Tanks of brazed construction are prohibited.

(c) The outer shell of a double wall cryogenic vessel shall be designed for the full range of pressure and/or vacuum to which it will be subjected, and provide for adequate structural support of the inner tank and insulation under all imposed loadings.

(d) Welding to the shell, head, or any other part of the container subject to internal pressure, shall be done in compliance with the ASME Code under which the tank was fabricated. Other welding is permitted only on saddle plates, lugs, or brackets attached to the container by the tank manufacturer.

(e) All LNG tanks for new installations for low temperature storage at 15 psig or less, shall, as a minimum, be designed, constructed, inspected, and certified in accordance with API "Standard, 620, Recommended Rules for Design and Construction of Large, Welded, Low–Pressure Storage Tanks" and the following additional requirements which will supersede where there is any conflict, or to the ASME Code.

NOTE: The references following in parentheses refers to specific paragraphs in API 620, 1978 Edition.

(1) The edges of the weld shall merge smoothly with the surface of the plate without a sharp angle. In making fillet welds, the weld metal shall be deposited in such a way that adequate penetration into the base metal at the root of the weld is secured. Although the provisions of 4.13 apply for horizontal butt joints, visible undercuts are not permitted for vertical butt joints. (4.13)

(2) The inspector shall have a valid certificate of competency issued by the Division. (5.02.1)

(3) The manufacturer shall have, and demonstrate, a quality control system to establish that all requirements including material, design, fabrication, examination (by manufacturer) and inspection (by the inspector) will be met. The written description of the quality control system shall, as a minimum, be in accordance with Appendix 10 of ASME Section VIII, Division 1. (5.02.3)

(4) Safety relief device and relieving capacities shall be in accordance with NFPA Pamphlet 59A and Appendix A, 1978 Edition.

(5) The manufacturer's report, or attachments, shall show for inner and outer tanks as a minimum:

(A) Manufacturer's name.

(B) Manufacturer's serial number for the tank.

(C) Nominal capacity.

(D) Design pressure for vapor space at the top.

(E) Design temperature.

(F) Maximum permissible specific gravity of liquid contents to be stored.

(G) Maximum level to which tank may be filled with liquid of that gravity, with full design pressure above the surfaces.

(H) Maximum level to which the tank may be filled with water for test or for purging purposes.

(I) Shell, head and other pressure boundary materials.

(J) Material thicknesses.

(K) Support and attachment materials.

(L) Nozzles, number and diameter.

(M) Year built. (5.27.2)

(6) The openings and/or connections between the tank and the pressure relief devices shall have an area at least equal to the combined areas of all the pressure relief inlets on that connection. The size of any discharge line shall be such that any pressure that may exist or develop will not reduce the relief capacity of the relieving devices below that required to properly protect the vessel. (N.3)

Where stop valves are used between the pressure relief devices and the tank, a written procedure shall be used to govern the use of the valves. Remote indicators shall be provided that will alert operating personnel when the stop valves are not in the fully open position or, alternately, reliable interlocks shall be provided to assure that minimum required relief capacity is always available. (N.8.)

(7) Design calculations shall be certified to be correct and complete by one or more currently registered professional engineers competent in the applicable field of design of LNG storage. The provisions of NFPA Pamphlet 59A, 1975, Section 4–1.3 shall be used for seismic loadings. For public utilities, the provisions of General Order 112(D) of the California Public Utilities Commission shall also be considered for all live loadings including Part III, Subpart B, Sections 193.115, 117 and 119, for seismic loadings, and shall be acceptable to the Commission.

(8) When butt joints are used in outer tanks, they shall be double welded and designed with a joint efficiency of 70% as a minimum in accordance with table UW–12 of ASME Section VIII, Division 1. (Q.6)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment of subsection (a) filed 4–1–77; effective thirtieth da thereafter (Register 77, No. 14).
4. Repealer of subsection (e) filed 4–7–81 as an emergency; effective upon filing (Register 81, No. 15). A Certificate of Compliance must be transmitted to OAL within 120 days or emergency language will be repealed on 8–5–81.
5. Certificate of Compliance transmitted to OAL 7–7–81 and filed 8–6–81 (Register 81, No. 32).
6. Amendment of subsections (a)–(g), and renumbering of Section 459 to subsection (h) filed 1–5–88; operative 2–4–88 (Register 88, No. 4).
7. Amendment of section heading, section and NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

## § 456. Design and Construction of CNG Cylinders.

All CNG cylinders shall be constructed according to DOT specifications.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment filed 1–5–88; operative 2–4–88 (Register 88, No. 4).
4. Amendment of section heading, section and NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

## § 457. Design and Construction of LNG Vaporizers.

(a) LNG Vaporizers:

(1) Vaporizers having a volumetric capacity in excess of 1 U.S. gallon shall be either:

(A) Constructed, inspected and stamped in accordance with the ASME Code unless the design and construction of the vaporizer are accepted by the Division as equivalent to the ASME Code, or;

(B) Fabricated and tested in accordance with ANSI B–31.3 when artificial heat is not used for vaporization and when of welded construction consisting of continuous pipe or tubing and fittings not exceeding 6 inches inside diameter, or;

(C) Made of threaded piping and pipe fittings and built to good engineering practice with a factor of safety of not less than 4, taking into account all imposed loadings.

(2) Vaporizers and any part thereof, including carbureting devices, shall be designed for minimum as well as maximum temperatures and the maximum pressure that can be imposed with a safety factor of at least 4.

(3) Vaporizers having a volumetric capacity in excess of 1 U.S. gallon shall be stamped with the information required by the ASME Code and shall also include:

(A) Head and shell thicknesses.

(B) The words "For LNG."

(C) Heat exchange surface in square feet.

(D) The vaporizer capacity per hour in U.S. gallons.

(E) Minimum safety relief valve capacity in CFM air. (See Section 540 (c).)

(b) Vaporizers made of pipe or tubing shall have a nominal diameter of 2 inches or less and shall have the information required in (C), (D) and (E) above stamped on a nameplate which shall be permanently attached to the vaporizer. This nameplate shall also show the manufacturer's name, year built and maximum allowable working pressure.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment filed 1–5–88; operative 2–4–88 (Register 88, No. 4).
4. Amendment of section heading, repealer of subsections (a)–(a)(5), subsection relettering, and amendment of NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

## § 458. Design and Construction of $NH_3$ Tanks.

(a) All $NH_3$ tanks for new installations shall be constructed, inspected, and stamped in compliance with the ASME Code (unless the design, material, and construction of the tank are accepted by the Division as equivalent to the ASME Code) and registered with the National Board of Boiler and Pressure Vessel Inspectors. The stamping on all new $NH_3$ tanks or on nameplates attached thereto shall include the following, in addition to the stamping required by the ASME Code:

(1) The head and shell thicknesses.

(2) The gross volumetric capacity in U. S. gallons.

(3) Total outside surface area of the container in square feet.

(b) The allowable working pressure of any existing $NH_3$ tank shall be determined by the provisions of the ASME Code effective when the tank was manufactured and upon its condition determined upon inspection. Containers once installed under ground shall not later be reinstalled above ground unless they successfully withstand hydrostatic pressure retests at the pressure specified for the original hydrostatic test as required by the ASME Code under which constructed and show no evidence of serious corrosion.

(c) Any tank used in refrigeration systems or for the refrigerated storage or transportation of $NH_3$ shall be designed and constructed for an allowable working pressure which takes into consideration the temperature anticipated in the vessel and other appropriate design data.

(d) Except for tanks used in refrigeration systems, any tank used for the unrefrigerated storage, transportation, or utilization of $NH_3$ shall be

designed and constructed in accordance with the ASME Code for an allowable working pressure of at least 265 psig.

(e) All cold formed heads of ferrous material used on $NH_3$ tanks shall be heat treated, either before or after welding to the tank, in accordance with paragraph UCS-56 of the ASME Code, regardless of the thickness of the metal when the tanks are to be used for the transportation of anhydrous ammonia or for the storage of anhydrous ammonia.

(f) Portable tanks or cylinders of 25 water gallons water capacity or less, that are transported inside service trucks for servicing $NH_3$ refrigeration systems, shall be built either to the ASME Code or to the DOT specifications but must have a stamped pressure of at least 420 psig.

(g) Spot-radiography, partial radiography or 100% radiography shall be required for all vessels except DOT cylinders.

(h) Nonrefrigerated containers, and system nameplates, when required, shall be permanently attached to the system so as to be readily accessible for inspection and shall be marked as specified in the following:

(1) With the name and address of the supplier of the system or the trade name of the system and with the date of fabrication.

(2) With a notation "Anhydrous Ammonia."

(3) With marking indicating the maximum level to which the container may be filled with liquid anhydrous ammonia at temperatures between 20° F and 130° F except on containers provided with fixed level indicators, such as fixed length dip tubes, or containers that are filled by weight. Markings shall be in increments of not more than 20° F.

(i) Marking refrigerated containers except in refrigeration plants where ammonia is used solely as a refrigerant. Each refrigerated container shall be marked with a nameplate on the outer covering in an accessible place as specified in the following:

(1) The maximum allowable water level to which the container may be filled for test purposes.

(2) With the density of the product in pounds per cubic foot for which the container was designed.

(3) With the maximum level to which the container may be filled with liquid anhydrous ammonia.

(4) With a notation "Anhydrous Ammonia."

(j) All $NH_3$ tanks for new installations with a design pressure of 15 psig or less shall be designed, constructed, inspected and certified in accordance with API Standard 620, 1978 Edition, with the additional requirements listed in Section 455(h)(1)-(8) of these Orders, which will supersede where there is any conflict, or they may be built to the ASME Code.

(k) The shell or head thickness of any container shall not be less than three-sixteenth inch.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 3-28-75; effective 30th day thereafter (Register 75, No. 13).
3. Amendment of subsection (a) filed 4-1-77; effective thirtieth day thereafter (Register 77, No. 14).
4. Amendment filed 1-5-88; operative 2-4-88 (Register 88, No. 4).
5. Amendment of subsection (e) filed 9-23-88; operative 10-23-88 (Register 88, No. 40).

### § 459. Liquefied Natural Gas Tanks.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 1-17-80; effective thirtieth day thereafter (Register 80, No. 3). For prior history, see Registers77, No. 14, and 72, No. 50.
2. Renumbering of Section 459 to Section 455(h) filed 1-5-88; operative 2-4-88 (Register 88, No. 4).

### § 460. Design and Construction of Pressure Vessels for Other Than Compressed Air, LPG, $NH_3$ and Natural Gas.

(a) All new pressure vessels for pressures exceeding 15 psig used for the transportation, storage, or use of any poisonous, corrosive, or flammable substance, or other products at temperatures above their boiling points at atmospheric pressures, or in which the pressure is generated by means of a compressor, shall be constructed, inspected, and stamped in compliance with the ASME Code, unless the design, material and construction of the vessel are accepted by the Division as equivalent to the ASME Code. Except for "UM" vessels, all such vessels shall be registered with the National Board of Boiler and Pressure Vessel Inspectors.

(b) All secondhand pressure vessels defined in (a) above shall have been constructed, inspected, and stamped in compliance with the ASME Code (or DOT specifications, if in DOT service) unless the design, material, and construction of the vessel are accepted by the Division as equivalent to the ASME Code.

(c) The allowable working pressure of all existing pressure vessels defined in Section 460(a) shall be calculated in accordance with the ASME Code; or in the case of non-ASME Code pressure vessels, the working pressure shall be determined by the standards of the ASME Code with a factor of safety of not less than 4.

(d) All pressure vessels not otherwise covered herein shall be designed and constructed in accordance with the ASME Code or in accordance with good engineering practice for the pressure and service in which they are to be used.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 1-17-80; effective thirtieth day thereafter (Register 80, No. 3). For prior history, see Register 78, No. 13.
2. Editorial correction of History No. 1 (Register 81, No. 8).
3. Amendment filed 1-5-88; operative 2-4-88 (Register 88, No. 4).

## Article 3. Air Tanks

### § 461. Permits to Operate.

(a) Except during the time that a request for a permit remains unacted upon or as permitted in Section 461 (f), no air tank shall be operated unless a permit to operate has been issued.

(b) Except during the time that a request for a permit remains unacted upon, every person owning or having the custody, management, or operation of an air tank which requires a permit to operate who operates it without a permit is guilty of a misdemeanor. Operating an air tank without a permit constitutes a separate offense for each day that it is so operated.

(c) The permit shall be posted under glass in a conspicuous place on or near the air tank or in a weatherproof container secured to the unit, and shall be available at all times to any qualified inspector.

(d) Except as provided in Subsection 461(h), the permit for portable air tanks shall expire not more than three years from the date of inspection and for all other air tanks not more than 5 years from the date of inspection or upon the alteration of, or damage to, the air tank or installation, or upon change of ownership and location, whichever occurs first.

NOTE: The permit shall not expire upon change of ownership and location for portable tanks.

(e) A temporary permit to operate may be issued for not more than 30 days to allow a reasonable time for required changes to be made.

(f) Air tanks having a volume of 1 1/2 cubic feet or less which have safety valves set to open at not more than 150 psi do not require permits to operate, but shall comply with all other provisions of these Orders, including construction. Air tanks used for self-contained breathing apparatus and having a volumetric capacity of 1 cubic foot or less and constructed, inspected, and maintained in accordance with DOT regulations do not require permits to operate.

(g) No person, firm, or company shall rent or offer for rent for use in a place of employment any air tank requiring a permit to operate unless the required permit has been issued by or in behalf of the Division.

(h) Air tanks subject to a maximum allowable working pressure not exceeding 150 psi., as shown by the required code marking, and having a volume of 25 cubic feet or less shall be inspected when placed into service. An indefinite permit shall be issued provided that the tank has been constructed, inspected and stamped in compliance with the ASME Code,

or the design, material, and construction of the tank is accepted by the Division as equivalent to the ASME Code and the tank is in compliance with the applicable provisions of these orders. A new inspection and permit for operation shall be required whenever there is a change of ownership and permanent location of the tank or there is an alteration or change in the tank which affects the tank's safety.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3, 7681 and 7683, Labor Code.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsection (d) and new subsection (h) filed 12-18-81; effective thirtieth day thereafter (Register 81, No. 51).

### § 462. Field Inspections and Reports.

(a) All air tanks requiring a permit to operate shall be inspected internally and externally at least once every 3 years for portable tanks and once every 5 years for all other tanks by a qualified inspector.

This subsection shall not be applicable for air tanks which fulfill the requirements for an indefinite permit as provided in Section 461(h).

EXCEPTION: The internal inspection of tanks less than 2 years old may be waived at the discretion of the inspector, provided all other requirements of Section 462(c) are met.

(1) Ultrasonic thickness determination shall be permitted in lieu of, or in conjunction with, internal inspection for air tanks of 36" diameter or less. Thickness determinations shall be made in at least eight areas: two on each head and two on both the top (upper) and bottom (lower) portions of the shell.

Thickness determinations indicating significant reduction in the material thickness over a general area (National Board Inspection Code Par. U-107 may be used as a guide) shall be shown on the inspection report as well as the calculations for the reduction in the allowable working pressure.

The qualified inspector's employer shall be responsible for the inspector's or ultrasonic examiner's competency in the use of the ultrasonic thickness gage, and the examiner's signed report shall be attached to the qualified inspector's inspection report.

(2) Air tanks shall be installed so that all drains, handholes, inspection plugs and manholes therein are easily accessible. Air tanks shall be supported with sufficient clearance to permit a complete external inspection and to avoid corrosion of external surfaces. Under no circumstances shall an air tank be buried underground or located in an inaccessible place.

(b) The owner or user of any air tank shall prepare it for inspection and make provisions to permit the required inspections to be made safely when requested to do so by the Division or a qualified inspector.

(1) Preparation for an internal inspection shall include the removal of such inspection plugs or plates as are deemed necessary by the qualified inspector.

(2) The qualified inspector shall decide whether a hydrostatic pressure test is necessary and if it is ordered, the owner or user shall make the necessary preparations for such tests by blanking off connections and filling the tanks with water and pressurizing the tank.

(3) If the owner or user finds the date set for inspection not convenient, the owner or user shall immediately ask the Division for a postponement and give good cause,in which case the inspection shall be permitted to be postponed for a period of not more than 30 days from the date first set for inspection.

(c) All air tanks subject to inspection under these Orders and regularly inspected by qualified inspectors not employed by the Division shall be exempt from periodic inspection by the Division if the tanks and systems conform to these Safety Orders and:

(1) Reports of all air tank inspections are submitted to the Division within 21 days of inspection;

(2) Reports indicate whether internal inspection or external inspection under pressure, or both, have been made.

(3) Reports give the reasons for any refusal to issue a permit and for any change in the allowable working pressure;

(4) Reports specify in detail the condition of the air tank and any changes or repairs ordered. If changes or repairs are ordered, a written report shall be furnished to the owner or user of the tank by the inspecting agency.

(d) Permits shall be issued only if tanks and systems comply in all respects with these orders and all inspection fees are paid.

(e) Qualified inspectors employed by insurance companies shall immediately notify the Division of the name of the owner or user, as shown on the permit to operate, the location and state serial number of every air tank on which insurance has been refused, canceled or discontinued, and shall give the reasons why.

(f) Qualified inspectors employed by other than insurance companies shall immediately notify the Division of the name of the owner or user and the location and state serial number of every tank inspected by them which is removed from active service or which is considered unsafe for further service as an air tank, and shall give the reasons why.

NOTE: Nothing in these order shall prevent a qualified safety engineer employed by the Division from inspecting any tank. However, no inspection fee shall be charged by the Division where the required inspection has been made and the provisions of subsection (c) above have been met.

(g) Qualified inspectors making the first field inspection of air tanks required by these Orders to have a permit to operate shall stamp on the tank a State serial number (unless a State serial number has previously been stamped thereon) which shall become a permanent means of identification. This assigned number shall be made either by steel die figures not less than 5/16 inch in height, or outlined by means of center punch dots with figures not less than 3/4 inch in height, and shall be stamped adjacent to the manufacturer's ASME Code stamping or above an inspection opening if the ASME Code stamping is not accessible.

(h) No state serial number or ASME Code stamping shall be permanently covered by insulating or other material unless such number and stamping is transferred to a fixed plate readily visible outside of all insulating material.

(i) Whenever the condition of an air tank is such as to make it unfit for air pressure service, a qualified safety engineer employed by the Division may affix a rejection mark ( $\frac{0}{X}$ ) consisting of an "x" at least 1 inch in height with a circle at least 1/2 inch in diameter located between the upper arms of the "x." The rejection mark shall be outlined in center punch marks and located immediately above or adjacent to the state serial number.

(j) All air tanks shall have inspection openings in compliance with the ASME Code. When inspection openings are not provided, the owner or user shall provide such openings, one (1) in each head or in the shell near each head and approximately opposite the longitudinal seam, as follows:

(1) Tanks 12 inches or less in inside diameter shall have at least two threaded openings not less than 3/4 inch pipe size.

(2) Tanks less than 18 inches and more than 12 inches in inside diameter shall have at least two handholes or two plugged, threaded openings not less than 1 1/2 inch pipe size.

(3) Tanks 18 inches to and including 36 inches in inside diameter shall have a manhole or at least two handholes or two plugged, threaded inspection openings not less than 2-inch pipe size.

(4) Tanks exceeding 36 inches in inside diameter shall have a manhole, except those whose shape or use makes a manhole impractical; in which case two handholes 4 inches by 6 inches or two openings of equivalent area may be substituted for the manhole opening.

(5) (A) An elliptical manhole shall be not less than 11 inches by 15 inches or 10 inches by 16 inches in size. The inside diameter of a circular manhole shall be not less than 15 inches.

(B) A handhole shall be at least 2 inches by 3 inches in size. It may be larger, depending upon the size of the tank and the location of the opening.

(C) All access and inspection openings shall be designed in accordance with the rules of the ASME Code for openings.

(k) Air tanks used in systems which have had moisture removed to the degree that the air has an atmospheric dew point of –50° F or less, shall not be required to have inspection openings.

(l) Air tanks shall meet and be installed in accordance with the following requirements:

(1) Air tank supports and appurtenances shall be in accordance with Paragraph UG–22 and recommended design practices of Appendix G of Section VIII, Division 1 of the ASME Code with sufficient clearance provided under the tank to allow for operation of the drain valve.

(2)(A) Air compressor units which have a reciprocating compressor and a driving unit over two horsepower mounted on the tank shall be in accordance with the requirements of paragraphs (B) and (C) as follows:

(B) The tank manufacturer's data report shall show the tank and machinery supports provided by the tank manufacturer. When reinforcing pads are used as a means of stress distribution at the legs and/or base plate attachment they shall be designed to minimize regions of high stress concentration and be sealed in such a manner as to inhibit corrosion.

(C) Based on written certification from the vessel manufacturer stating compatibility of the vessel and compressor–driving system, the assembler shall permanently affix a label or apply stamping with letters and figures not less than 5/32 inch in height to the side of the vessel machinery platform showing 462(l )(2) compliance. In those cases where the tank manufacturer is the assembler, this data shall be permitted to be stamped on the ASME Code nameplate, separated from the ASME Code stamping. Upon request of the Qualified Inspector or the Division, design calculations incorporating system dynamics or experimentally obtained test data shall be furnished by the tank manufacturer to verify compliance with this Order.

(D) New air tanks not complying with this subsection shall not have a reciprocating compressor and driving unit mounted on the tank unless the supports are modified to the satisfaction of the Qualified Inspector, and the Division.

(3) All visible undercuts at butt, groove, or fillet welds must be repaired prior to issuance of the permit to operate.

(4) The employer shall notify the Division and the inspection agency before further use in the event of cracking or leaking of the air tank.

(5) If an air tank has cracked because of the compressor mounting or supports, the compressor and driving unit shall be reinstalled separately from the air tank in accordance with the requirements of the applicable Safety Orders, unless the supports are modified to the satisfaction of the Qualified Inspector and the Division. Whenever possible, the reinstallation of the compressor and driving unit shall be in accordance with the recommendations of the original assembler. The reinstallation must be acceptable to the Qualified Inspector.

(m)(1) Air piping shall be in accordance with ANSI B31.1 or B31.3.

(2) All piping from the tank to the first shut–off valve shall be Schedule 80 metallic pipe.

(3) Plastic piping systems may be used for compressed air conveyance above and below ground, when meeting all of the following requirements:

(A) Only ductile plastic materials shall be used.

(B) Only plastic pipe, valves and fittings recommended for use by the manufacturer to convey compressed air shall be used.

(C) Plastic pipe, valves and fittings shall not be used for compressed air systems over 150 psi or temperatures over 140° F.

(D) Plastic piping systems shall be designed, installed, maintained, and operated in full accordance with the manufacturer's specifications and instructions.

(E) All plastic pipe shall be permanently marked continuously, but not to exceed 5–foot intervals, with the following information:

1. Size;
2. Manufacturer's name;
3. Pressure rating at 73° F and 140° F;
4. Material name, specification, ASTM cell classification, batch number, and the date of manufacture;
5. The words "For Compressed Air"; and
6. Either Schedule, "Sch Number", or Standard Dimension Ratio, "SDR Number".

(F) All plastic valves and fittings shall be permanently marked with the following:

1. Size;
2. Manufacturer's name or logo;
3. Pressure rating at 73° F; and
4. Material name.

(G) Plastic valves and fittings shall be of the same manufacturer and materials as the pipe.

(H) Only joining compounds meeting or exceeding manufacturer's specifications shall be used when assembling the plastic pipe.

(I) The employer shall use pipe that meets or exceeds the test requirements listed in Appendix C, and upon request, supply the Division written laboratory certification from the manufacturer that the pipe meets or exceeds all test requirements listed in Appendix C of these orders.

(J) The pipe system components, pipe, valves, fittings, and joining compounds shall be designed for the full working pressure of the system for its design life.

EXCEPTION: Pipe or tubing under 3/8–inch diameter need not meet these requirements.

(4) Plastic pipe and fittings that do not meet the requirements of subsection (m)(3) may be used in compressed air service, provided that all of the following conditions are satisfied:

(A) Pressure shall be limited to 150 psi, temperature to 120° F, size up to 2–inch diameter pipe size, and wall thickness to Schedule 40 or heavier;

(B) The piping system shall be protected from mechanical damage along its entire length by either location or actual guarding. The guarding shall be of sufficient strength to withstand any anticipated impact. It shall also be capable of containing exploding fragments; and

(C) The piping system shall be supported and secured by U bolts, conduit supports, rigid hangers or similar methods at intervals not to exceed five (5) feet.

(n) Any air tank having dished heads or conical heads the skirt (flange) and/or the knuckle radius of which does not meet the minimum ASME Code requirements shall have such heads stayed as flat surfaces in accordance with the ASME Code rules for braced and stayed flat plates. Any head dished to a radius greater than the diameter of the tank to which it is attached shall be stayed as a flat surface in accordance with the ASME Code rules for braced and stayed flat plates. No allowance shall be taken in such calculations for the curved portion of the head.

(o) All air tanks, including existing installations, having unstayed dished heads without a transition knuckle for attachment to the shell shall be permanently removed from service with the rejection mark affixed by the qualified inspector, as required in Section 462 (i).

(p) The bottom dished head of an air tank operated in the vertical position shall not be dished inward but must be concave to pressure.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3, 7650 and 7681, Labor Code.

HISTORY

1. Repealer and new subsection (m) filed 2–8–78; effective thirtieth day thereafter (Register 78, No. 6). For prior history, see Register 77, No. 26.
2. Amendment of subsection (m) filed 3–10–78 as an emergency; effective upon filing (Register 78, No. 6).
3. Amendment of subsection (m) refiled 6–2–78 as an emergency; effective upon filing. Certificate of Compliance included (Register 78, No. 22).
4. Amendment of subsection (m) filed 12–4–78 as an emergency; effective upon filing (Register 78, No. 49).
5. Certificate of Compliance filed 3–23–79 (Register 79, No. 12).
6. Amendment of subsections (a) and (m) filed 6–15–79; effective thirtieth day thereafter (Register 79, No. 24).
7. Amendment of subsection (a) filed 12–18–81; effective thirtieth day thereafter (Register 81, No. 51).
8. Amendment filed 1–5–88; operative 2–4–88 (Register 88, No. 4).
9. Amendment of subsections (k) and (m) filed 4–8–92; operative 5–8–92 (Register 92, No. 18).

### § 463. Certification of Inspectors.

Inspectors shall be certified in accordance with Section 779 of the Boiler and Fired Pressure Vessel Safety Orders.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).

### § 464. Air Tank Inspection Fees.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 3-28-78; effective thirtieth day thereafter (Register 78, No. 13). For history of former section, see Register 77, No. 49.
2. Repealer filed 1-5-88; operative 2-4-88 (Register 88, No. 4).

### § 465. Safety Devices and Systems.

(a) Each air tank shall be protected by 1 or more safety valves and other indicating and controlling devices that will insure safe operation of the tank. If the tank has a volumetric capacity in excess of 2,000 gallons, it shall be fitted with at least 2 safety valves, the smallest of which shall have a relieving capacity of at least 50 percent of the relieving capacity of the largest valve.

(b) Safety relief valves shall:

(1) Be constructed and installed in accordance with ASME Boiler and Pressure Vessel Code, Section VIII.

(2) Be located and installed so that they cannot be readily rendered inoperative.

(A) No valve of any description shall be placed between the required safety valve or rupture disc and the air tank.

(B) The opening or connection between the tank and safety valve or valves shall have a cross-sectional area at least equal to the combined areas of all attached safety valve inlets.

(3) Be of the direct spring-loaded type. The springs shall not be adjusted to carry more than: 10 percent greater pressure than the set pressure stamped on the valve up to and including 250 psig; or 5 percent greater pressure than the set pressure stamped on the valve above 250 psig.

(A) For pressures of 2000 psig or less safety valves shall be equipped with a substantial lifting device so that the disc can be easily lifted from its seat not less than 1/8 the diameter of the seat when the pressure in the tank is 75 percent of that at which the safety valve is set to open.

(B) For pressures exceeding 2000 psig: the lifting device may be omitted providing the valve is removed for testing at least once each year and a record kept of this test and made available to the qualified inspector; acceptable rupture discs may be used in lieu of safety valves provided they are in compliance with Section 465 (b) (2), (4) and (5).

(4) Be set to open at not more than the allowable working pressure of the tank.

(5) Have a relieving capacity sufficient to prevent a rise of pressure in the tank of more than 10 percent above the allowable working pressure when all connected compressors are operating with all unloading devices rendered inoperative.

(6) When exposed to a temperature of 32 degrees Fahrenheit or less, have a suitable drain at the lowest point where water can collect.

(7) Not have seats or discs of cast iron.

(8) Be tested frequently and at regular intervals to determine whether they are in good operating condition.

(c) Discharge pipes from safety valves and rupture discs installed on air tanks shall:

(1) Have a cross-sectional area at least equal to the combined outlet areas of all valves discharging into them.

(2) Be designed and installed so that there will be no interference with the proper operation or discharge capacity of the safety valve or rupture disc.

(3) Have no valve of any description.

(4) Be fitted with open drains which will prevent the accumulation of liquid above the safety valve or rupture disc.

(5) Be installed and supported in a manner that will prevent undue stresses on the safety valve or rupture disc.

(6) Be led to a safe place of discharge.

(d) Each air tank shall be equipped with a suitable pressure-indicating gage with the dial graduated to approximately double the operating pressure, but in no case less than 1.2 times the pressure at which the safety-relieving device is set to function.

(e) Each air tank shall be equipped with a manually operated, valved drain located at the lowest point where water can collect. The valve for this drain shall be suitably located for convenient operation. Automatic drains shall not be considered as complying with this order unless also equipped with a manually operated by-pass.

NOTE: It is recommended that each air tank be completely drained of accumulated moisture at least once during each day of operation.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsection (a) filed 10-25-74; effective thirtieth day thereafter (Register 74, No. 43).
3. Amendment filed 1-5-88; operative 2-4-88 (Register 88, No. 4).

### § 466. Repairs and Alterations.

(a) No alteration or repair affecting the safety of any air tank covered by these Orders shall be made without the authorization of a qualified inspector.

(b) Any air tank which has suffered mechanical damage causing dents or other deformations exceeding a depth of 1 1/2 times the thickness of the deformed head or shell or two percent of the tank diameter, whichever is greater, shall be properly re-formed to its original shape or otherwise repaired as provided in these Orders. Deformations less than these amounts located in areas of high stress concentration and/or having abrupt changes in configuration may be required to be reformed to their original shape at the discretion of the qualified inspector.

(c) Any areas that are deteriorated by internal or external corrosion or by mechanical abrasion that affects the safety of the tank shall be properly repaired or the allowable working pressure shall be reduced proportionately. The building up by welding of such area is prohibited, except isolated pits shall be permitted to be properly prepared and welded at the discretion of the qualified inspector.

(d) No welded repair shall be permitted on a tank of brazed construction. If inspection openings are required in such tanks, they may be machine-cut and closed with handhole plates.

(e) Any welding necessary when making major repairs or alterations to tanks shall be done by a welder qualified in accordance with Section IX of the ASME Code in the position or positions used in making the repair or alteration.

(1) When minor welding repairs or alterations, such as closing openings not exceeding 2 inch pipe size, installing reinforcing rings around handhole openings, installing staybolts or through stays, etc., are made by a welder who is not ASME qualified, these repairs or alterations shall be authorized and approved by a qualified inspector.

(f) The qualified inspector who authorizes any welded repair or alteration shall report it to the Division within 21 days, giving full details, including the State serial number of the tank, the name and address of the owner or user, the location of the tank, and the name and address of the welder and the welder's employer.

(1) The qualified inspector shall stamp his/her certificate of competency number adjacent to all welded repairs authorized.

(g) If the longitudinal seam of any non-code air tank of welded construction is found to have incomplete penetration of the welded joint, the tank shall not be repaired. Such tanks shall be permanently removed from service, with the rejection mark affixed by the qualified inspector, as required in Section 462(i).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 1–5–88; operative 2–4–88 (Register 88, No. 4).

## Article 4. Pressure Vessels Other Than Air Tanks, LPG, $NH_3$ and CNG or LNG Tanks

### § 467. Controls.

(a) Any pressure vessel not specifically covered or exempted elsewhere in these Orders shall be protected by one or more safety valves or rupture discs set to open at not more than the allowable working pressure of the vessel and by such other controlling and indicating devices as are necessary to insure safe operation of the pressure vessel.

(b) The owner or user of any pressure vessel not specifically covered or exempted elsewhere in these Orders shall provide such inspection and maintenance as is necessary to insure safe operation of the pressure vessel.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 1–5–88; operative 2–4–88 (Register 88, No. 4).

## Article 5. LP–Gas Systems

The provisions of Article 5 need not apply to liquefied petroleum gas installations up to the point of delivery to a transportation tank in plants manufacturing this product, nor beyond the storage tanks in plants using this product for processing only and not for fuel; provided, however, that tanks used in such plants shall be designed and constructed in accordance with provisions of Article 2, and shall be maintained and operated in accordance with the provisions of Article 4 of these Orders.

### § 470. Permit to Operate.

(a) Except during the time a request for a permit remains unacted upon, no employer or employee shall use or cause to be used any pressure vessel for the storage or transportation of LP–Gas without first securing from the Division a permit to operate such container.

Exception: No permit to operate shall be required for pressure vessels of 125 gallons capacity or less or for cylinders used, inspected, and maintained in accordance with DOT regulations.

(b) Permits to operate dispensing units, trap tanks, and skid tanks shall expire in not more than 3 years while the permit to operate transportation tanks, mobile fuel tanks, and storage tanks shall expire in not more than 5 years.

It is intended that failure to maintain the installation in compliance with these Safety Orders will be justification to void the permit and require reinspection.

(c) The permit to operate any tank shall expire when any of the following occurs:

(1) The tank changes both ownership and location.

(2) Alterations are made which affect the safety of the installation.

(3) The tank has suffered mechanical or fire damage.

The permit to operate shall not expire due to the exchange or interchange of approved appurtenances intended for the same purposes.

(d) The permit to operate, or an acceptable copy, shall be kept readily available on the premises upon which the tank is located and shall be available at all times to any qualified inspector. In the case of a transportation or portable tank, the permit may be carried in the cab of the towing vehicle or in a suitable weatherproof container secured to the unit.

(e) No person shall charge LP–Gas into any tank requiring a permit to operate unless the permit to operate has been issued and posted, except where a request for a permit remains unacted upon. Containers shall be filled or used only upon authorization of the owner.

(f) No permit to operate shall be issued for any tank until all provisions of these Orders have been complied with and the required fee has been paid.

(g) Any tank that has been used for the storage or transportation of products other than LP–Gas shall be inspected internally by a qualified inspector at the time of the periodic inspection required by Section 470 (i).

(h) At the time of the first field inspection of each tank requiring a permit to operate, the qualified inspector shall stamp on the tank a state serial number in accordance with Section 462 (h).

(i) Except as permitted in Section 470 (a) each LP–Gas tank shall be inspected in accordance with the intervals shown in Section 470 (b).

(j) Inspectors shall be certified in accordance with Section 463.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment of subsections (b) and (j) filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsection (e) filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment of subsections (a), (b) and (c)(3) and new NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 471. Control of Products in Tanks and Cylinders.

(a) No LP–Gas shall be transported or delivered into any vessel covered by these Orders until first odorized using a warning agent of such character that the gases are detectable, by a distinct odor, down to a concentration in air of not over one–fifth the lower limit of flammability.

EXCEPTION: When the LP–Gas is to be used exclusively in a process where the presence of an odorant would make the LP–Gas unfit for use in the process and for deliveries between refineries or between producing wells and refineries, a waiver may be obtained from the Division upon written request.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of section, including repealer of figure 1, and new NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).
3. Repealer and new section filed 1–30–2002; operative 3–1–2002 (Register 2002, No. 5).

### § 472. Charging LP–Gas Containers.

(a) Air pressure shall not be used to displace LP–Gas during the transfer operation.

(b) All filling connections shall be kept effectively plugged or capped when not in use. These caps or plugs shall be so designed that they will vent to the atmosphere while at least 3 full threads are engaged.

(c) An accessible 24–hour communication service shall be required for self–service dispenser systems.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment of subsection (e)(1)(D) filed 3–15–77; effective thirtieth day thereafter. (Register 77, No. 12). For prior history, see Register 76, No. 51.
2. Amendment of subsection (e)(3) filed 5–6–77; effective thirtieth day thereafter (Register 77, No. 19).
3. Amendment of section heading and section, including repealer of table 472, and new NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 473. Gauging Devices.

(a) A permanent dip pipe or a fixed level gauge shall be installed in all containers filled by volume and shall be of such length or position that it will indicate when the tank is 86 1/2 percent full.

(1) This fixed dip tube or fixed level gauge shall be permanently installed in the tank. Additional dip pipes or fixed level gauges may be used providing they are permanently marked to show the outage they indicate.

(b) Each tank 125–gallon capacity or more, filled by volume, shall be equipped with a liquid level gauging device, such as a rotary gauge, magnetic gage, or series of fixed pipes, in addition to the fixed dip pipe required in Section 473(a).

(c) Each tank having an allowable working pressure of less than 250 psi shall have a thermometer well. This Order does not apply to tanks built

before January 1, 1946, or to code tanks constructed in accordance with Paragraphs U-68, U-69, and UW-52 (b) for a working pressure of 200 psi or more. The thermometer well shall be plugged or capped when not in use to prevent the entrance of moisture and the resulting hazard of corrosion.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11-7-75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment of section heading and section, including repealer of table 473 and figure 2, and new NOTE filed 12-4-96; operative 1-3-97 (Register 96, No. 49).

## § 474. Approval of Devices.

(a) All devices which are used in LP-Gas installations shall be of an approved type and construction suitable for the use intended. See "Approved."

(b) LP-Gas shall not be used to operate any device or equipment designed to be operated with compressed air, nor shall LP-Gas vapor be released into the air, except as provided for by these Orders.

(c) Container valves, connectors, regulators, manifolds, piping, and tubing shall not be used as structural supports for heaters.

(d) All electrical wiring and electrical equipment shall be in accordance with the Electrical Safety Orders administered by the Division and NFPA 58 Section 3-7.2.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsections (a) and (d) filed 10-17-75; effective thirtieth day thereafter (Register 75, No. 42).
3. Repealer and new subsection (e) filed 11-7-75; effective thirtieth day thereafter (Register 75, No. 45).
4. Amendment filed 1-6-83; effective thirtieth day thereafter (Register 83, No. 2).
5. Amendment of subsection (e), Table 474, Part D filed 7-8-85; effective thirtieth day thereafter (Register 85, No. 28).
6. Editorial reprinting of 7-8-85 order and correction of Register 85, No. 28 revision record sheet changing Chapter 3.5 to Chapter 4, Subchapter 1 (Register 85, No. 38).
7. Editorial correction of HISTORY 6 (Register 95, No. 21).
8. Amendment of section, including repealer of table 474 and figure 474, and amendment of NOTE filed 12-4-96; operative 1-3-97 (Register 96, No. 49).

## § 475. Location of Storage Containers and Regulating Equipment.

(a) A single container of 575 gallons or less water capacity can be located 10 feet from an important building providing such container is at least 25 feet from any other container of more than 125 gallons water capacity. For important buildings constructed of concrete or masonry materials with no overhanging roof:

(1) A single container up to 500 gallons capacity may be located not less than 3 feet from an important building provided there is no opening in the building within 10 feet.

(2) A single container 501 to 1200 gallons capacity may be located not less than 3 feet from an important building provided there is no opening in the building within 25 feet.

(b) No stationary storage container shall be located less than 10 feet from the nearest street line or sidewalk, or less than 50 feet from the center line of any railroad main track.

(c) Installation of stationary LP-Gas containers on the rooftop shall be prohibited.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 4-1-77; effective thirtieth day thereafter (Register 77, No. 14). For prior history, see Register 76, No. 32.
2. New subsection (g) filed 9-11-81; effective thirtieth day thereafter (Register 81, No. 37).
3. Amendment filed 4-13-82; effective thirtieth day thereafter (Register 82, No. 16).
4. Amendment of subsection (a) filed 9-3-82; effective thirtieth day thereafter (Register 82, No. 36).
5. Amendment of section and NOTE filed 12-4-96; operative 1-3-97 (Register 96, No. 49).
6. New subsection (c) filed 1-30-2002; operative 3-1-2002 (Register 2002, No. 5).

## § 476. Location and Installation of Underground Tanks.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Repealer and new subsection (a) filed 11-7-75; effective thirtieth day thereafter (Register 75, No. 45).
3. Repealer filed 12-4-96; operative 1-3-97 (Register 96, No. 49).

## § 477. Installation of Containers

(a) Aboveground Containers.

(1) Metallic structural supports, when used, shall be encased in concrete or other material having a fire-resistant rating of at least 2 hours when the distance between the lower surface of the tank and the top of the concrete or masonry foundation exceeds 18 inches.

(2) Aboveground storage containers shall be protected from impact from vehicles by means of crashposts, curbs, fences, railings or similar barriers. Where crashposts are used, they shall be no less than 5 feet long with 2 feet below ground and encased in concrete. Posts shall be no less than 4 inches in diameter and be filled with concrete if the wall thickness is less than that of standard pipe. Posts shall be 4 feet apart on centers (maximum) and at least 3 feet from the storage container. Other materials may be used and shall provide equivalent protection. Such curbs or fences shall be arranged so they will not hamper free ventilation around the containers.

(3) Containers installed in battery shall not be installed with liquid and vapor lines connecting into common headers unless either:

(A) the working pressure of all such containers is at least equal to the vapor pressure of the product stored in any such container; or,

(B) check valves or other devices are installed in the system to prohibit the introduction of the higher-pressure product into the lower-pressure container.

(b) Mounded Containers.

Containers shall not be mounded unless written permission to do so has been obtained from the Division.

In addition to the requirements of NFPA 58, Section 3-2.4.7, the following construction, maintenance, and documentation provisions shall apply:

(1) Construction.

(A) Where containers are to be installed closer than 30 inches above surrounding grade, a moisture barrier to prevent the upward migration of potentially corrosive salts or acids shall be installed.

(B) Drainage tile or pipe shall be installed to prevent the accumulation of moisture within the insulating medium. Where a moisture barrier is installed, the drainage material shall be placed above that barrier.

(C) Relief-valve capacity and installation shall be that which is required for aboveground containers and shall comply with NFPA 58, Section 3-2.6.3, as measured from the tank shell.

(D) All container-liquid and vapor-transfer openings shall be fitted with pneumatically-controlled internal-type valves incorporating excess-flow protection or spring-loaded backflow check valves. Remote emergency shutdown capability shall be provided.

(E) Container valves and appurtenances shall be accessible for operation, repair, or maintenance without disturbing mounding material.

NOTE: Access crawlways shall be evaluated for compliance with the Confined Space Safety Orders, General Industry Safety Order, Article 108.

(F) Prior to mounding, inaccessible plugged openings, joints, and other appurtenances shall be tested for leaks at operating pressure.

(G) Liquid level and pressure gauges shall be accessible visually and physically and shall be vented outside of the mounding.

(H) Mounded containers shall be protected against corrosion by coating the container with corrosion-resistant material approved for buried

installations provided the material is applied in accordance with the manufacturer's recommendations. The employer/user shall submit to the Division a copy of the manufacturer's data for the coating material showing the method and procedures for coating prior to installation.

(I) All containers shall be cathodically protected and electrically isolated from connecting piping or electrically conducive structures in accordance with good engineering practice.

(J) Depth gauges shall be installed at intervals of not greater than 6 feet along the vertical center line of the container to visually indicate when insulating material becomes less than 1 foot in depth over the container.

(2) Maintenance Requirements.

(A) Filling densities shall be as required for aboveground containers.

(B) Voltage readings from the cathodic system shall be taken and recorded annually and shall produce a negative voltage of at least 0.85 volts with reference to a saturated copper–copper sulfide half cell.

(C) All mounded containers shall be completely uncovered for an inspection of all external surfaces at intervals of at least once every 5 years. The intervals shall be extended when no failure in the cathodic protection has been detected, provided that every container shall be uncovered at least once every 30 years. Alternate methods of inspection may be used, e.g., UT, internal inspection.

(D) Where passive cathodic protection is provided, amperage readings shall be taken annually from each sacrificial anode. Where impressed current is used, amperage and voltage readings shall be reported at 6–month intervals.

(E) The depth gauges across the top of the container shall be observed annually to determine that a minimum of one–foot coverage of insulating material exists over the top of the entire container.

(F) Leak surveys shall be conducted annually using a combustible–gas indicator or comparably effective instrument to sample the air from the drainage system beneath the container and from test holes surrounding the container at intervals not greater than 10 feet.

(3) Documentation.

(A) The following documentation shall be maintained for the life of the system:

1. The construction requirements of this Section and of NFPA 58, Section 3–2.4.7 shall be documented through the use of photographs and other appropriate means.

2. All tests required in this Section shall be recorded in a system log showing the date the tests were taken, the related readings, and the name of the person making the tests. These tests shall be available to the Division at any time for the purpose of inspection and verification and shall be retained for the life of the installation.

3. The owner or operator of a mounded container shall send a copy of the system log for that container to the Division's principal safety engineer each year during the month of June.

(c) Underground Containers.

Containers shall not be installed underground unless written permission to do so has been obtained from the Division.

In addition to the requirements of NFPA 58, Section 3–2.4.8, the following construction, maintenance, and documentation provisions shall apply:

(1) Construction.

(A) Underground containers shall be protected against corrosion by coating the container with corrosion–resistant material approved for buried installations provided the material is applied in accordance with the manufacturer's recommendations. The employer/user shall submit to the Division a copy of the manufacturer's data for the coating material showing the method and procedures for coating prior to installation.

(B) All containers shall be cathodically protected and shall be electrically isolated from connecting piping or electrically conducive structures in accordance with good engineering practice.

(C) No tank used underground shall be installed aboveground until it has been inspected and found to be in compliance with requirements for an aboveground installation.

(2) Maintenance Requirements.

(A) Voltage readings from the cathodic system shall be taken and recorded annually and shall produce a negative voltage of at least 0.85 volts with reference to a saturated copper–copper sulfite half cell.

(B) All underground containers shall be completely uncovered for an inspection of all external surfaces at intervals of at least once every 5 years. The intervals shall be extended when no failure in the cathodic protection has been detected, provided that every container shall be uncovered at least once every 30 years.

Alternate methods of inspection such as internal inspection and ultrasonic testing may be used to check and verify the integrity of the container in lieu of it being uncovered.

(C) Where impressed current is used, amperage and voltage readings shall be recorded at 6–month intervals.

(D) Leak surveys shall be conducted annually using a combustible–gas indicator or comparably effective instrument to sample the air from the tests holes surrounding the container at intervals not greater than 10 feet.

(3) Documentation.

(A) The following documentation shall be maintained for the life of the system:

1. The construction requirements of this Section and NFPA 58, Section 3–2.4.8 shall be documented through the use of photographs and other appropriate means.

2. All tests required in this Section shall be recorded in a system log showing the date the tests were taken, the related readings, and the name of the person making the tests. These tests shall be available to the Division at any time for the purpose of inspection and verification and shall be retained for the life of the installation.

3. The owner or operator of a underground container shall send a copy of the system log for that container to the Division's principal safety engineer each year during the month of June.

(d) Partially Underground/Mounded Containers.

Partially underground or partially mounded containers shall be prohibited.

(e) Fusible plugs and/or rupture discs are prohibited for any container installed or reinstalled after the effective date of these orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment of subsection (a) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).
4. Amendment of section heading and section and new NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).
5. Amendment of subsections (a)(1) and (a)(2), repealer of subsection (a)(3), subsection renumbering and amendment of subsection (b)(1)(C) filed 1–30–2002; operative 3–1–2002 (Register 2002, No. 5).

## § 478. Skid and Trap Tanks, and Containers on Transportation and Bulk Delivery Vehicles.

(a) Unless installed in compliance with Section 477(a), skid and trap tanks shall not be used at any location for more than 180 days without written permission from the Division.

(b) Transportation tanks, or other tanks mounted on wheels, shall not be used in lieu of storage tanks or skid tanks without written permission from the Division. Such permission shall be granted for temporary use only and not to exceed 180 days.

NOTE: Authority cited: Section 142.3, Labor Code; and Section 13241, Health and Safety Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment of section heading and section and new NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 479. Installation of Tanks on Transportation and Bulk Delivery Vehicles.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment of subsection (a)(3) filed 5–4–76 as procedural and organizational; effective upon filing (Register 76, No. 19).
4. New subsection (m) filed 12–14–76; effective thirtieth day thereafter (Register 76, No. 51).
5. Repealer filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 480. Pipes and Fittings for All Liquid Lines and for Vapor Lines Where the Pressure Exceeds 20 PSI.

(a) All pipe between the container and first shutoff valve shall be Schedule 80 (extra heavy). All fittings between the container and first shutoff valve shall be steel as required by Section 480(c).

Aboveground piping in excess of 1 1/2 inch pipe size may be Schedule 40 when used beyond the first shutoff valve, providing:

(1) Threaded connections are used and the piping is used for vapor service only at less than 125 psi.

(2) Welded connections are used and the piping is used for liquid or vapor service at less than 400 psi.

All other piping shall be Schedule 80.

Where used, flare nuts shall be of forged brass.

All welded piping shall be fabricated and tested in accordance with the ANSI Standard Code for Pressure Piping, Section 3, Petroleum Refinery Piping B–31.3, 1993 Edition or equivalent.

(b) Piping outside of buildings may be either buried or installed aboveground and shall be well–supported and protected against mechanical injury. All underground piping shall be Schedule 80 and shall be buried not less than 18 inches below the surface of the ground, unless otherwise protected, and shall be protected from corrosion by approved corrosion–resistant material and by cathodic protection.

Voltage readings from the cathodic system shall be taken and recorded annually and shall produce a negative voltage of at least 0.85 volts with reference to a saturated copper–copper sulfide half–cell. Where impressed current is used, amperage and voltage readings shall be recorded at 6–month intervals.

(c) All steel fittings used with Schedule 80 pipe shall be Schedule 80 if butt welded, 3,000 pounds WOG if socket welded, and 2,000 pounds WOG forged steel if threaded. All other steel fittings shall have a rating of at least Schedule 40 if butt welded, and 2,000 pounds WOG if socket welded or threaded.

All steel valves and fittings shall have a steam rating of at least one hundred fifty (150) psi, ANSI standard, with a minimum WOG rating of 250 psi. Valves of material other than steel shall have a pressure rating of at least two hundred (200) psi steam, or four hundred (400) psi WOG. The manufacturer of LP–Gas valves shall stamp or otherwise permanently mark the valve body to indicate the pressure rating. Steam valves when used for LP–Gas service shall be refitted for such service. Valve seat material, packing, gaskets, etc., shall be resistant to the action of LP–Gas.

(d) The use of the following is prohibited:

(1) Valves of a design that will allow the valve stem to be removed without removal of complete valve bonnet.

(2) Valves with valve stem packing glands which cannot be repacked under pressure, unless there is another valve of acceptable type between them and the tank.

(3) Aluminum tubing.

(4) Pipe nipples used in lieu of couplings or flanges on tanks.

(5) Multivalves without excess–flow valves and fixed dip tubes for use other than DOT cylinders.

(e) In addition to the valves required in NFPA 58, Section 2–3.3.2, all liquid and vapor connections shall be fitted with manually operated shutoff valves located as close to the container as practicable.

(f) Where containers are in liquid service or a combination of liquid and vapor service, all connections with manually operated shutoff valves shall be legibly labeled to indicate whether they communicate with the vapor or liquid space.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14). For prior history, see Register 75, No. 45.
2. Amendment of section, including repealer of table 480, and new NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 481. Pipes and Fittings for Vapor Lines Where the Pressure Is 20 PSI or Less.

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14).
4. Amendment of subsections (d) and (f) filed 4–13–82; effective thirtieth day thereafter (Register 82, No. 16).
5. Repealer filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 482. Hose Specifications.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Repealer filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 483. Pressure Gages.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Repealer filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 484. Vaporizer Installation.

(a) Surge tanks, gas–air mix tanks, etc., containing vapor only, shall be located at least 3 feet from important buildings and property lines. Such tanks operating at pressures exceeding 20 psi shall be located not less than 10 feet from any building opening, whereas such tanks exceeding 501 gallons shall be located not less than 25 feet from any building opening.

(b) The use of direct–fired container heaters is prohibited.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14).
4. Amendment of section and new NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 485. Safety Valves.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment of subsection (f) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).
4. Amendment filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14).
5. Repealer filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 486. Regulators.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. New section filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

2. Repealer filed 1–30–2002; operative 3–1–2002 (Register 2002, No. 5).

### § 487. Regulator Installation.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. New section filed 12–4–96; operative 1–3–97 (Register 96, No. 49).
2. Repealer filed 1–30–2002; operative 3–1–2002 (Register 2002, No. 5).

### § 488. LP Gas Tank Inspection Fees.

See the Division of Occupational Safety and Health's regulations contained in Chapter 3.2, Group 2, Title 8, California Code of Regulations. The regulations for LP Gas tank inspection fees are reprinted in Appendix C of these orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Repealer and new section filed 3–28–78; effective thirtieth day thereafter (Register 78, No. 13). For history of former section, see Register 76, No. 32.
2. Amendment of section and NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 489. Warning Signs.

(a) All containers in excess of 125 gallons, except transportation containers and fuel containers on motor vehicles, shall have the word "FLAMMABLE" on each side that is readily visible. The letters of this sign shall be in standard–type letters and shall have a height of at least 1/12 of the diameter of the container, but need not be in excess of 1 1/2 inches for containers of 500 gallons capacity or less or 4 inches for containers exceeding 500 gallons capacity.

(b) Warning signs with the words "NO SMOKING, OPEN FLAMES OR OTHER SOURCE OF IGNITION PERMITTED WITHIN _____ FEET" shall be applied in letters at least 1 1/2 inches high, in sharply contrasting colors, on each stationary container or on a sign posted adjacent to the container. This sign shall also be posted adjacent to all loading and unloading terminals located more than 50 feet from the container.

(c) When 2 or more containers are installed in battery, the requirement of Sections 489 (a) and (b) will be considered as being complied with when the required warning signs are prominently displayed on all 4 sides of such battery of containers.

NOTE: The distance shall be that shown on the following table:

| *Volumetric capacity of Containers (in U.S. gallons)* | *Minimum distance from source of ignition* |
|---|---|
| 125 to 500 inclusive | 10 feet |
| 501 to 2,000 inclusive | 25 feet |
| Over 2,000 | 50 feet |

(d) The warning signs required in Section 489(b) shall be posted on each exterior wall of each room or building used for filling or storage of cylinders.

(e) When LP–Gas and one or more other gases are stored or used in the same area, the containers shall be marked to identify their content. Markings shall be in compliance with ANSI Z48.1–1992, "Method of Marking Portable Compressed Gas Containers To Identify the Material Contained."

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment of subsection (a) filed 5–4–77 as an emergency; effective upon filing (Register 77, No. 19). For prior history, see Register 76, No. 32.
2. Amendment of subsection (a) filed 8–18–77; effective thirtieth day thereafter (Register 77, No. 34).
3. Amendment of section and new NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 490. Installation of Fuel Tanks for Motor Vehicles.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (g)(1) filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14).
2. Repealer of subsections (h)(3) and (h)(4) filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
3. Amendment of subsection (g)(4) filed 7–8–85; effective thirtieth day thereafter (Register 85, No. 28).
4. Editorial reprinting of 7–8–85 order and correction of Register 85, No. 28 revision record sheet changing Chapter 3.5 to Chapter 4, Subchapter 1 (Register 85, No. 38).
5. Repealer filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 491. Installation of Fuel Tanks and Cylinders Used on Tar Pots, Weed Burners, Etc.

HISTORY

1. Repealer filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 492. Use of Tanks and Cylinders of Less than 60 U.S. Gallons.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsections (a) and (c) and new subsection (f) filed 10–17–75; effective thirtieth day thereafter (Register 75, No. 42).
3. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
4. Amendment filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14).
5. Repealer filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 493. Storage or Utilization of LP–Gas Within Buildings.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 11–7–75; effective thirtieth day thereafter (Register 75, No. 45).
3. Amendment filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14).
4. Repealer filed 12–4–96; operative 1–3–97 (Register 96, No. 49).

### § 494. Repairs and Alterations.

(a) No repairs or alterations involving flame, arc, or other method of welding shall be made on any container cylinder, or system unless such container, cylinder, or system shall first have been certified as gas free or oxygen free by a qualified person.

(b) No repair or alteration affecting the safety of any container or cylinder shall be made until the contemplated repair or alteration has been authorized by a qualified inspector. The owner or user of the LP–Gas container shall ensure that the repair or alteration is performed by a company with a valid ASME "U" or a National Board "R" Certificate of Authorization. The exchange or interchange of valves, fittings, and accessories intended for the same purpose shall not be considered a repair or alteration.

(c) No container or cylinder that has been subjected to a fire shall be returned to service until it has been inspected by a qualified inspector and found to be safe.

Any container or cylinder which has suffered mechanical damage causing dents or other deformation exceeding a depth of 1 1/2 times the thickness of the deformed head or shell or two percent of the container diameter, whichever is greater, shall be re–formed to its original shape or otherwise repaired as provided in these Orders.

(d) Any vessel requiring repair or alteration or that has been subjected to a fire shall not be recharged until it has been retested in accordance with the requirements for its original hydrostatic test and found to be suitable for continued service, when such test is deemed necessary by the qualified inspector.

(e) The owner or user of the LP–Gas container shall ensure that all repairs or alterations affecting the safety of LP–Gas tanks are reported to the Division within 21 days by the ASME "U" or National Board "R" certificate holder making such repairs or alterations using the appropriate National Board Form, "R–1", Report of Welded Repair, or "R–2", Report of Alteration, or equivalent (See Appendix D). The owner or user shall ensure that the qualified inspector stamps his/her certificate of competency number adjacent to all welded repairs authorized by him/her, except that in the case of repairs to quenched and tempered steels, this number need not be stamped. This exception shall be noted in the inspector's report.

(f) Any welding necessary when making repairs or alterations to containers shall be done by a welder qualified in accordance with Section IX of the ASME Code in the position or positions used in making the repair.

(g) Repairs to DOT cylinders shall be made under DOT regulations and control in accordance with the requirements of 49 CFR Section 173.34.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 13241, Health and Safety Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of section and new NOTE filed 12–4–96; operative 1–3–97 (Register 96, No. 49).
3. Amendment filed 1–30–2002; operative 3–1–2002 (Register 2002, No. 5).

## Article 6. Anhydrous Ammonia

INTRODUCTION

The provisions of Article 6 need not apply to anhydrous ammonia installations up to the point of delivery to a transportation tank in plants manufacturing this product or in refrigeration plants where ammonia is used solely as a refrigerant; provided, however, that tanks used in such plants be designed and constructed in accordance with the provisions of Article 2, and shall be maintained and operated in accordance with the provisions of Article 4 of these Orders.

HISTORY

1. Amendment of introduction filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).

### § 500. Approval of Devices.

(a) All devices which are used in anhydrous ammonia service shall be of a type and construction suitable for the use to which they are put. They shall preferably be listed by at least one nationally recognized testing laboratory such as, but not limited to, Underwriters Laboratories, Inc. and Factory Mutual Engineering Corp. (For the purposes of this paragraph, the word "listed" means that equipment is of a kind mentioned in a list which is published by a nationally recognized laboratory which makes periodic inspection of the production of such equipment, and states such equipment meets nationally recognized standards or has been tested and found safe for use in a specified manner.)

The Division may approve or accept devices upon satisfactory evidence that they are designed and constructed for safe operation in anhydrous ammonia service.

Drawings and calculations for custom–built devices must be submitted to the Division for acceptance. Both the drawings and calculations must be signed by a registered professional engineer.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).

### § 501. Installation of Aboveground Storage Tanks for Other Than Refrigeration Service.

(a) Stationary tanks shall be installed aboveground on firm masonry or concrete foundations, or on full length skids providing a bearing area limiting foundation loadings to not more than 2,000 pounds per square foot. Unless supported by continuous skids welded to pads on the tank shell, aboveground horizontal storage tanks shall have no more than 2 points of support longitudinally. Where necessary, tanks shall be securely anchored or weighted to prevent floating.

A tank may be installed on saddles, directly on concrete foundations, or it may be supported by properly designed metallic structural supports. When the tank is installed directly on concrete foundations, a corrosion pad shall be provided at the points of contact with the foundation. These corrosion pads shall be at least 3/16 inch thick, and shall have a width at least equal to the width of the foundation at the point of contact with the tank, but in no case shall they be less than 8 times the shell thickness in width.

When corrosion pads or pad–type steel supports are used, the pad shall have rounded or semielliptically shaped ends, and shall be attached to the shell with a continuous seal weld. Corrosion pads shall be not less than 1/4 the circumference of the shell in length.

Unless installed on concrete pads, skid tanks shall be placed on engineered soil or road base topped with well–drained gravel or oiled sand, capable of supporting 2,000 pounds per square foot.

Sufficient space shall be provided between stationary storage tanks to permit access for fire fighting. This space shall not be less than 5 feet for tanks over 1,200–gallon capacity. Tanks exceeding 1,200–gallon capacity shall be so installed that the bottom outside surface of the tank is at least 12 inches above ground level.

(b) All tanks over 1,200–gallon capacity shall be installed on foundations in such a manner as to permit expansion and contraction. Every tank shall be so supported as to prevent the concentration of excessive loads on the tank at the points of support. All foundations and fastenings shall be designed to provide reasonable safety under imposed loadings, including wind, earthquake, vibrations, etc.

(c) Containers shall be located outside of buildings, or in buildings or sections thereof especially equipped for this service. Consideration shall be given to the adverse health effects of ammonia, as well as the adjacent fire hazards, when selecting the location for a storage container.

Storage areas shall be kept free of readily ignitible materials such as waste, weeds, and long dry grass.

Stationary storage tanks shall be located with relation to property lines, residential buildings, highways, etc., in accordance with the following table:

| | *Minimum distance (feet) from tank to* | | |
|---|---|---|---|
| *Capacity of tank in U.S. gallons* | *Line of property adjoining which may be built upon* | *Highway or main track of railroad* | *Residential building* |
| 1,200 and less | 50 | 25 | 50 |
| Over 1,200 to and including 30,000 | 50 | 50 | 50 |
| Over 30,000 to and including 70,000 | 65 | 50 | 65 |
| Over 70,000 to and including 500,000 | 100 | 50 | 100 |
| Over 500,000 | 150 | 50 | 150 |

| | *Minimum distance (feet) from tank to* | | |
|---|---|---|---|
| *Capacity of tank in U.S. gallons* | *Any Building or area used by the public for deliberation, worship, education, entertainment, amusement, or awaiting transportation* | *Hospital, jail or other similar institutions* | *Open well, reservoir, or other source of potable water* |
| 1,200 and less | 250 | 750 | 50 |
| Over 1,200 to and including 30,000 | 400 | 1,000 | 100 |
| Over 30,000 to and including 70,000 | 520 | 1,300 | 100 |
| Over 70,000 to and including 500,000 | 800 | 2,000 | 200 |
| Over 500,000 | 1,000 | 2,500 | 200 |

Electrical equipment and wiring for use in ammonia installations shall be general purpose or weather resistant as appropriate.

Electrical systems shall be installed and maintained in accordance with the Electrical Safety Orders.

(d) Where vehicle impact is possible or likely stationary tanks shall be protected against vehicle damage by a rugged fence, suitable crash posts, curbs, or other acceptable protection. All storage tanks located where unauthorized tampering is possible shall be surrounded with a rugged steel fence or equivalent, or all liquid and vapor outlets shall be kept effectively locked when not in use.

(e) All stationary storage tanks exceeding 1,200 gallons capacity shall have the loading and unloading connections secured to a concrete bulkhead or equivalent designed to withstand a horizontal pull of not less than 2,000 pounds in any direction, unless other suitable protection is provided. This bulkhead shall not be located underneath the tank. The loading and unloading connections shall be firmly secured to this bulkhead and the piping between the bulkhead and tank shall be installed in a manner to provide for expansion, contraction, jarring, vibrations, settling, etc. For skid tanks exceeding 1,200 gallons capacity, such loading and unloading connections shall be securely fastened to the skid or to the tank supports.

NOTE: 2,000 pounds may not be adequate for all sizes of loading and unloading hoses and connections.

(f) Where excess-flow valves [See Section 507 (e)] are used, liquid and vapor lines shall be at least full size from the excess-flow valve in the tank to the point of discharge or an additional excess-flow valve or

equivalent shall be located as close to the point of pipe size reduction or other restriction as is practical, unless the excess-flow valve in the tank is designed to operate at the reduced flow condition, in which case the excess-flow valve in the tank may suffice.

Where excess-flow valves are used and 2 or more tanks are installed in battery, with common loading and/or unloading lines, the common liquid and vapor lines shall be fitted with excess-flow valves or equivalent (unless the common line has a cross-sectional area equal to or in excess of the combined areas of the individual tank lines; or unless the excess-flow valves are designed to operate at the reduced flow condition, in which case the excess-flow valve in the tank may suffice). Where additional excess-flow valves are used in common loading and/or unloading lines, the additional excess-flow valve or equivalent shall be located as close to the point of restriction as practical.

NOTE: A quick-closing manually operated valve may be considered equivalent to an excess-flow valve at the point of pipe size reduction or other restriction providing:

(1) It is equipped with a means of closing the valve manually from a point remote from the delivery connection.

(2) The loading and/or unloading line in which it is located is secured to a bulkhead complying with Section 501 (e).

(3) The quick-closing valve is in the pipeline on the tank side of the bulkhead.

(g) Tanks installed in battery shall be so installed that the top surfaces of the tanks are substantially in the same horizontal plane.

(h) The following minimum equipment shall be installed, properly maintained, and readily available for use at all stationary storage tanks in readily accessible locations.

(1) At least two full face respiratory devices in compliance with Section 5144; preferably one self contained breathing apparatus, and one $NH_3$ gas mask with spare canister.

(2) One pair $NH_3$ resistant gloves.

(3) One pair $NH_3$ resistant boots.

(4) $NH_3$ resistant pants and jacket and/or slicker.

(5) One quick-acting deluge shower and bubble fountain or other method of simultaneously washing both eyes with clean water.

The minimum water supply shall be a 50-gallon container of clean water.

(6) One first-aid kit in compliance with Section 3400 or 3439.

(7) One fire extinguisher conforming to the provisions of California Administrative Code, Title 19, Chapter 1, Subchapter 3, and having a rating of not less 40B-C.

The employer shall have a program of periodic inspection of the above emergency equipment to maintain it in serviceable condition.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsections (a), (c), (d), and (h) filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).
3. Amendment of subsection (a) filed 8-6-76; effective thirtieth day thereafter (Register 76, No. 32).
4. Amendment of subsection (f) filed 4-1-77; effective thirtieth day thereafter (Register 77, No. 14).

### § 502. Warning Signs.

(a) Except as noted in Section 502 (b), all anhydrous ammonia tanks 60 gallons capacity or more shall have warning signs provided on at least 2 sides with the words "Caution—Ammonia" in sharply contrasting colors, with letters at least 1/12 of the tank diameter in height, but need not be in excess of 1 1/2 inches for tanks 500 gallons capacity or less or 4 inches for tanks exceeding 500 gallons capacity.

(b) All tanks used for the transportation of ammonia on the highways shall be marked as specified by the DOT and adopted by Section 1222, California Administrative Code, under authority of Section 34500, Vehicle Code. These markings also will be acceptable to the Division in lieu of the markings required under Section 502 (a) for such tanks in off-highway service.

(c) Uninsulated containers shall have a highly reflective surface maintained in good condition.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. New subsection (c) filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).

### § 503. Portable Tanks.

(a) Portable tanks installed as permanent installations for periods of time exceeding 90 days shall be in compliance with Section 501.

Portable tanks filled at point of use shall be installed substantially level. A safe and accessible source of clean water (minimum 5 gallons) shall be immediately available to enable an employee to wash his eyes in case of accidental sprays or spillage. If a container is used, it shall have a suitable opening to permit the application of water to flush the eyes.

(b) Portable tanks shall comply with these orders, and legs or other supporting structures shall be secured to tanks in accordance with the code or rules under which the tank is designed and built, and shall be designed to withstand a loading in any direction equal to the loaded weight of the tank when filled to the maximum permissible level with a factor of safety of at least 8.

(c) Fittings on all portable tanks shall be installed in recessed wells or otherwise protected to prevent damage to the fittings during transportation and use.

(d) When portable tanks are transported from 1 location to another, they shall be securely fastened to the transporting vehicle.

(e) When containers are mounted on four-wheel trailers, care shall be taken to insure that the weight is distributed evenly over both axles.

(f) When the cradle and the tank are not welded together suitable material shall be used between them to eliminate metal-to-metal friction.

HISTORY

1. Amendment filed 12-8-72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. New subsections (e) and (f) filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).
3. Editorial correction of subsection (a) (Register 95, No. 45).

### § 504. Installation of Tanks on Transportation and Bulk Delivery Vehicles.

(a) Transportation tanks mounted on truck or trailer frames shall be placed on saddles or bolsters with the center of gravity as low as possible. Such saddles, bolsters, and/or other fastenings shall be designed to withstand a loading in any direction equal to the loaded weight of the tank when filled to the maximum permissible level with a factor of safety of at least 8. Transportation tanks of the so-called "frameless-type" shall not be used in anhydrous ammonia service until the design of the tank and tank supports has been submitted to the Division and found acceptable. The installation must also comply with DOT requirements.

All transportation trailers shall be firmly and securely attached to the vehicle drawing them by means of suitable drawbars supplemented by a safety chain (or chains) or safety cables.

Every transportation trailer or semitrailer shall have a reliable system of brakes, and adequate provision shall be made to operate the brakes from the driver's seat.

Every transportation trailer shall be equipped with self-energizing brakes.

Transportation trailers shall be so designed that the towed vehicle will follow substantially in the path of the towing vehicle and will not whip or swerve dangerously from side to side.

Where a fifth wheel is employed, it shall be ruggedly designed, securely fastened to both units, and equipped with a positive locking mechanism which will prevent separation of the two units except by manual release.

(b) Every transportation tank shall be protected by a suitable steel bumper attached to the vehicle chassis or equivalent.

(c) All fittings on transportation tanks not protected by the vehicle frame shall be located in recessed wells or otherwise suitably guarded. Any such guards shall be designed to minimize the possibility of rupturing the tank head or shall in case of vehicular accident. The recessed well, if used, shall be of sufficient size and depth that the top of all fittings will

be located below the tank shell or head line. The recessed well for safety relief valves shall be located at the top center of the tank and shall be equipped with an unlocked hinged cover or equivalent.

(d) No anhydrous ammonia piping or valves shall be installed within the cab or driver's compartment of a truck.

(e) All piping and fittings on the bottom of transport and bulk delivery tanks shall be adequately guarded.

(f) All tank trucks and all trucks pulling tank trailers used to transport anhydrous ammonia over 1,200 gallons water capacity shall be equipped with the following minimum safety equipment which shall be properly maintained and readily available for use:

(1) One pair of $NH_3$ resistant gloves.

(2) Full face mask for ammonia service

(3) One fire extinguisher conforming to the provisions of Article 157 of the General Industry Safety Orders and having a rating of not less than 20B–C.

(4) A container of not less than 5 gallons of fresh water, so located as to permit immediate application. This container shall have a suitable opening to permit rinsing of eyes.

(g) Each liquid withdrawal opening 2 inches nominal pipe size or larger on transportation tanks and bulk delivery vehicles over 1,200 gallons capacity shall be fitted with a remotely controlled internal shutoff valve of the type listed in Sections 507 (e) (3) through (5). Such tanks over 3,500 gallons capacity shall have 2 remote stations for the valve controls, 1 at each end of the tank and diagonally opposite each other.

One control mechanism at each control station may be used to operate all such remotely controlled valves.

All replacement valves for the above service shall comply with these Orders, if the openings in the tank are adaptable for conversion.

(h) Where excess–flow valves [See Section 507 (e) (2).] are used, all liquid and vapor lines shall be at least full size from the excess–flow valves in the tank to the point of discharge or an additional excess–flow valve or equivalent shall be located as close to the point of pipe size reduction or other restriction as is practical, unless the excess–flow valve in the tank is designed to operate at the reduced flow conditions, in which case the excess–flow valve in the tank may suffice.

Where excess flow valves are used on tank trucks having 2 or more tanks with common loading and/or unloading lines, the common liquid or vapor lines shall be fitted with an excess–flow valve or equivalent in the common line in addition to the excess–flow valve in the tank opening (unless the common line has a cross–sectional area equal to or in excess of the combined areas of the individual tank lines or unless the excess flow valves in the tank are designed to operate at the reduced flow condition, in either of which case the excess–flow valve in the tank may suffice). Where additional excess–flow valves are used in common loading and/or unloading lines, the additional excess–flow valve or equivalent shall be located as close to the point of restriction as is practical.

NOTE: A quick–closing manually operated valve may be considered equivalent to an excess–flow valve at the point of pipe size reduction or other restriction providing:

(1) It is equipped with a means for closing the valve manually from a point remote from the transfer hose connection.

(2) The loading and/or unloading line in which it is located is secured to the tank or vehicle framework a required by Section 504 (i).

(3) The quick–closing valve is located on the tank side of the structure used to secure the line or lines to the tank or vehicle frame.

(i) All liquid and vapor lines shall be adequately secured to the vehicle frame or tank. The device used to secure the lines shall be so designed that it will withstand the load imposed by the strongest hose and hose fitting to be used in the transfer operations without breaking, or 2,000 pounds, whichever is greater.

(j) All piping and fittings on transport and bulk delivery tanks shall be adequately guarded. The use of anhydrous ammonia hose between the tank and the transfer hose connection shall be limited to not more than 3 sections of metallic hose not over 24 inches in length in each liquid and vapor line. Such lengths of hose shall be used only where necessary to provide flexibility and shall not have 1 section of hose connected to another section of hose. Each section shall be so installed that it will be protected against mechanical damage and be readily visible for inspection. The manufacturer's identification required in Section 510 (b) shall be retained on each section.

(k) All transportation tanks shall be equipped for spray loading (filling in the vapor space), with an approved vapor return valve of adequate capacity.

HISTORY

1. Amendment of subsections (g), (h) and (j) filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsections (a) and (f) and new subsection (k) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
3. Repealer and new subsection (f) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).

### § 505. Installation of Mobile Storage Tanks.

(a) Mobile storage tanks shall meet the requirements of Section 504 except that:

(1) The design of saddles, bolsters, and/or other fastenings may be based on the empty weight of the tank for other than vertical loadings.(2) In addition to the requirements of Section 504 (f), there shall be available a container of not less than 50 gallons of fresh water unless there is immediately available another safe, reliable, and accessible source of water.

(b) When containing $NH_3$ liquid, mobile storage tanks shall be located in accordance with Section 501 (c).

(c) Mobile storage tanks shall be maintained substantially level and be securely blocked against accidental movement and shall be adequately supported independently of the wheels when containing $NH_3$ liquid.

(d) Only flexible connections shall be made to mobile storage tanks. No permanent piping to other installations is permitted. The loading and unloading connections shall be securely fastened to the vehicle frame or to the tank supports.

(e) All liquid shall be removed from mobile storage tanks before being moved to a new location.

(f) Unless surrounded by a rugged steel fence or equivalent, all liquid and vapor outlets shall be kept effectively locked when unattended.

(g) Transportation tanks shall not be used as mobile storage tanks without written permission from the Division, unless they are in full compliance with both Sections 504 and 505.

HISTORY

1. Amendment of subsection (b) filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).

### § 506. Installation of Tanks Mounted on Farm Machinery.

(a) Tanks or cylinders used to furnish anhydrous ammonia to agricultural applicator tanks and tanks used on applicators, etc., shall be so installed that the bottom of the container and/or any outlet connection, including hose, shall not be lower than the lowest horizontal edge of the vehicle axle when fully loaded. These tanks shall be secured to prevent jarring loose, slipping, or rotating of the tanks while in service. Such supports and fastenings shall be designed to withstand a loading in any direction equal to the loaded weight of the tank when filled to the maximum permissible level with a factor of safety of at least 8.

Field welding where necessary, shall be made only on nonpressure parts that were installed by the manufacturer of the tank.

(b) The connections between the applicator tank and pressure–reducing valve shall be extra heavy fittings and Schedule–80 pipe, high–pressure anhydrous ammonia hose (1750 psi minimum bursting pressure), or equivalent, and where exposed, shall be protected against physical damage. All main shutoff valves shall be readily accessible while the unit is in normal operation. All shutoff valves shall be suitably protected against physical damage.

(c) While in use on farm machinery, each skid tank, applicator tank, or combination thereof shall have securely attached a container holding not less than 5 gallons of fresh water. This container shall have a suitable opening to permit the application of water to flush the eyes.

The container of fresh water required by this subsection may be attached to the tractor or other source of power used to tow the vehicle or device on which the tank is used.

(d) All trailers shall be securely attached to the vehicle drawing them by means of drawbars supplemented by suitable safety chains.

(e) A trailer shall be constructed so that it will follow substantially in the path of the towing vehicle and will not whip or swerve dangerously from side to side.

HISTORY

1. Amendment of subsection (a) and new subsections (d) and (e) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).

### § 507. Piping, Valves, and Fittings for Liquid and Vapor Lines.

(a) All pipe between the tank and first shutoff valve shall be at least Schedule 80.

All fittings between the tank and the first shutoff valve shall be steel as required by Section 507 (c), first paragraph.

Aboveground piping in excess of 1 1/2–inch pipe size may be Schedule 40 when used beyond the first shutoff valve provided welded, or welded and flanged connections are used.

All other piping shall be Schedule 80.

All piping shall be tested after assembly and proved free of leaks at a pressure of not less than its normal operating pressure or 150 psi, whichever is greater.

Flammable material shall not be used for the installation acceptance pressure test.

All welded piping shall be fabricated and tested in accordance with the ANS Standards Code for Pressure Piping, Section 3, Petroleum Refinery Piping B–31.3, 1966 Edition or equivalent.

All refrigerated piping shall conform to the Refrigeration Piping Code, American National Standards Institute, B–31.5–1966 with addenda B–31.1a–1968 as it applies to ammonia.

Hose shall not be used in lieu of piping between the tank and loading and/or unloading connection, except that a section of metallic hose, not to exceed 24 inches in length may be used in each pipeline to provide flexibility and except as provided in Section 504 (j). The manufacturer's identification required in Section 510 (b) shall be retained on each section.

(b) All piping shall run as directly as practical, with suitable provision for expansion, contraction, jarring, vibrations, and settling. Piping may be either buried or installed aboveground, and shall be well supported and protected against physical damage. All underground piping shall be buried not less than 18 inches below the surface of the ground unless otherwise protected, and shall be adequately coated or otherwise protected against corrosion. Pipe coated as follows will be considered acceptable:

(1) Clean and prime.
(2) Coat with asphalt enamel.
(3) Wrap with forty–pound felt.
(4) Coat with asphalt enamel.
(5) Wrap with forty–pound felt.
(6) Coat with asphalt enamel.
(7) Wrap with Kraft paper.

Equivalent wrapping will be accepted at the discretion of the Division.

(c) All steel fittings used with Schedule 80 pipe shall be Schedule 80 if butt welded, 3,000 pound WOG if socket welded, and 2,000 pound WOG forged steel if threaded.

All other steel fittings shall have a rating of at least Schedule 40 if butt welded and 2,000 pound WOG if socket welded or threaded. Threaded connections shall not be seal welded.

Joint compounds shall be resistant to ammonia.

All other valves and fittings shall be of a type suitable for use with anhydrous ammonia and shall have a pressure rating of at least 400 psi WOG. Valve seat material, packing, gaskets, etc., shall be suitable for anhydrous ammonia service.

(d) The use of the following is prohibited:

(1) Valves, cocks, and pipe fittings of semisteel other than ASTM Specification Nos. A 536–67, Grade 60–40–18; A 395–68; A 445–66; A 47–68, Grade 35018; unless they have a pressure rating of not less than 600 psi WOG. In no case shall valves of semisteel other than the 4 ASTM Specifications listed above be used for primary stop valves.

Cast iron fittings made specifically for anhydrous ammonia service, meeting ASTM A–126–66, class B or C, may be used for secondary service if they have a service rating of at least 600 psi.

(2) Street ells and screwed service tees unless they are extra–heavy forged construction.

(3) Valves of a design that will allow the valve stem to be removed without removal of the complete valve bonnet, unless the flow is restricted by an inlet orifice to not more than 54 drill gage size.

(4) Ordinary solid–wedge–type gate valves unless there is another stop valve of acceptable type between the gate valve and tank.

(5) Valves with valve stem packing glands which cannot be repacked under pressure, unless there is another valve of acceptable type between it and the tank.

(6) Threaded aluminum fittings and/or adapters that are required to be connected or disconnected as part of the filling or transfer operation.

(7) Copper and brass pipe, fittings, valves, etc.

(8) Pipe, fittings, etc., that are galvanized or otherwise plated with material which is attacked by ammonia where such plating or galanizing is exposed to ammonia.

(e) Except for service valves, safety relief valves, and gaging connections, all liquid and vapor connections shall have 1 of the following installed directly in the tank connections:

(1) Connections up to and including 4–inch pipe size:

(A) A back–pressure check valve.

(B) An excess–flow valve.

Excess flow valves shall be designed with a bypass, not to exceed a No. 60 drill–size opening to allow equalization of pressures.

All excess flow valves shall be plainly and permanently marked with the name or trademark of the manufacturer, the catalog number, and the rated capacity.

(C) A manually operated check valve (internal valve) equipped with means for closing the valve from a point remote from the delivery connection and with such control mechanism fitted with a fusible section having a melting point of 208 degrees Fahrenheit to 220 degrees Fahrenheit which will cause the valve to close automatically in case of fire.

(D) A positive check valve (internal valve) which can be operated manually and which will close automatically on excess–flow conditions and which can be closed manually from a point remote from the delivery connections. Such valve shall also incorporate a fusible section as required in Section 507 (e)(1)(C) which will cause the valve to close automatically in case of fire.

(E) A positive check valve (internal valve) which is normally closed and which is opened by pump discharge pressure and which can be closed manually from a point remote from the delivery connections. Such valve shall close automatically with a reduction of pump discharge pressure and shall also incorporate a fusible section as required in Section 507 (e)(1)(C) which will cause the valve to close automatically in case of fire.

NOTE: Service valve as used in this order is limited to vapor valves screwed into vessel outlets not larger than 3/4–inch pipe size and having an inlet internal diameter in the valve body not exceeding the internal diameter of a 1/2–inch Schedule 80 pipe.

(2) Valves larger than 4 inch pipe size need not be installed directly in a tank connection, under the following conditions:

(A) The valve must be installed at the first flange or welded joint immediately outside the container in such a manner that any undue strain beyond the valve will not cause breakage between the tank and the valve.

(B) Automatically or remotely controlled valves, or both, of the fail safe type, shall be used. They must also be capable of manual operation.

(C) Piping between the tank and the valve shall be at least Schedule 120.

(D) Acceptance of the valves by the Division must be requested prior to installation.

(E) Where cables are used for remote operation, the control must be fitted with a fusible section having a melting point of 208 Fahrenheit to 220 Fahrenheit, which will cause the valve to close automatically in case of fire.

(f) In addition to the valves required in Section 507 (e), all liquid and vapor connections other than safety relief valve and gaging connections shall be fitted with a manually operated shutoff valve located:

(1) As close to the tank as practicable in all pipelines on connections not included in Section 507 (f)(2) or (3).

(2) In the loading and/or unloading pipelines between the tank and the pump, compressor, meter, or bulkhead, whichever is nearest the tank and in each branch line where it leaves a loading and/or unloading line. This applies only to pipelines on stationary tanks having the loading and/or unloading lines secured to bulkheads specified in Section 501 (e) and having valves complying with Section 507 (e)(1)(D) or (E) installed in the tank connections of such pipelines.

When a pump is attached directly to a valve complying with Section 507 (e)(1)(D) or (E), the manually operated shutoff valve required by this Order may be located between said pump and the meter or bulkhead, whichever is nearest the tank.

(3) In the loading and/or unloading pipelines between the tank and the device used to secure the pipeline as required in Section 504 (i). This applies only to pipelines on transportation tanks having valves complying with Section 507 (e)(1)(D) or (E) installed in tank connections of such pipelines.

(g) Every liquid pipeline or hose that can be isolated by 2 or more stop valves shall have a safety relief valve installed in the pipeline or hose to prevent excessive hydrostatic pressure. The safety relief valve required by this subsection shall start to discharge at not less than 300 psi, nor more than 400 psi, and it must relieve to the atmosphere at a safe point of discharge.

(h) All valves, regulators, gaging, and other tank accessory equipment shall be protected against physical damage.

(i) All tank connections requiring manually operated shutoff valves shall be labeled or tagged to indicate whether they communicate with the liquid or vapor space.

(j) The liquid fill line used to transfer anhydrous ammonia from transportation tanks exceeding 3,500 gallons capacity to storage tanks exceeding 2,000 gallons capacity shall be equipped with a backflow check valve to prevent discharge of anhydrous ammonia from the receiving tank in case of hose rupture. This is not intended to prevent transferring anhydrous ammonia from containers, other than transportation tanks exceeding 3,500 gallons capacity, into storage tanks through the load–out line.

(k) All tanks shall be equipped with vapor return valves.

History

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Repealer of subsection (e) and new subsection (e) filed 8–30–74; effective thirtieth day thereafter (Register 74, No. 35).
3. Amendment of subsections (a), (c), (d), (e), (g) and new subsection (k) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
4. Repealer and new subsections (e) and (f) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).

## § 508. Gaging Devices.

(a) A permanent dip pipe shall be installed in all tanks designed to be filled by volume, and shall be of such length that it will indicate when the tank is 86 1/2 percent full. The fixed dip pipe required in this order shall be permanently installed in the tank.

Each applicator container shall have a fixed liquid–level gage.

(b) Each tank filled by volume shall be equipped with a liquid level gaging device, such as a rotary gage, a slip tube, an automatic gage, a magnetic gage, or a series of fixed dip pipes, to show the liquid level in the tank at any time. This gaging device shall be in addition to the fixed dip pipe required in Section 508 (a).

A thermometer well shall be provided in all storage tanks over 1,200 gallons capacity not equipped with a fixed dip pipe, and in all transportation tanks.

(c) Liquid level gaging devices that require bleeding of the product to the atmosphere, such as rotary gages, dip pipes, or slip tubes, shall be so designed that the maximum opening of the bleeder valve is not larger than No. 54 drill size.

(d) Liquid level gaging devices shall be designed for a working pressure of not less than 300 psi ANS rating.

(e) Tubular–type gage glasses shall not be used.

(f) Each transportation tank exceeding 1,200 gallon capacity shall have a pressure gage installed with the dial graduated to approximately double the operating pressure but in no case less than 1.2 times the pressure at which the pressure relieving device is set to function.

Each farm vehicle tank over 250 gallons and each storage container shall be provided with a pressure gage graduated from 0 to 400 p.s.i. Gages shall be designated for use in ammonia service.

History

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsections (a), (b) and (f) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).

## § 509. Transfer of Liquids.

(a) No anhydrous ammonia shall be vented to the atmosphere during the transfer operation unless the vent is led to a safe point of discharge.

Anhydrous ammonia shall not be stored in or transferred into a container at a temperature lower than that shown on the nameplate.

Containers shall be charged or used only upon authorization of the owner.

(b) No gas other than anhydrous ammonia vapor shall be used to displace anhydrous ammonia during the transfer operation.

(c) All filling connections and/or permanently installed transfer hoses shall be equipped with a shutoff valve at the discharge end and shall be kept effectively capped when not in use. These caps or plugs may be plastic or metallic, but must be so designed that they will be vented to the atmosphere while at least 3 full threads are engaged.

(d) During the transfer of anhydrous ammonia, at least 1 attendant familiar with the installation shall remain in attendance at the controls necessary to stop the transfer operation. This attendant shall be considered familiar with the installation only after he has been provided with a set of operating instructions for the unloading operation and has been instructed through a minimum of 3 full cycles of operation. During the transfer of anhydrous ammonia into or from a transportation tank, the brakes of the transporting vehicle shall be set and the wheels blocked.

Provisions for unloading tank cars shall conform to the applicable recommendations contained in the DOT regulations. See 560(e) for Railroad Tank Car Loading and Unloading.

(1) Caution signs shall be so placed on the track or car as to give necessary warning to persons approaching the car from open end or ends of siding and shall be left up until after the car is unloaded and disconnected from discharge connections. Signs shall be of metal or other suitable material, at least 12 by 15 inches in size and bear the words "STOP—Tank Car Connected" or "STOP—Men at Work" the word, "STOP," being in letters at least 4 inches high and the other words in letters at least 2 inches high. The letters shall be white on a blue background.

(2) The track of a tank car siding shall be substantially level.

(e) No anhydrous ammonia shall be transferred with the point of delivery less than 10 feet from any residential building, street, public highway, or sidewalk unless the failure to transfer would create a hazard.

(f) All pumps and compressors used for the transfer of anhydrous ammonia shall be suitable for this service and shall be equipped with a pressure–actuated bypass valve and/or other acceptable device to prevent pressure in the transfer equipment of more than 400 psi unless the piping system is specifically designed for higher pressures. In no case shall safety relief valves used for this purpose be set to open at pressures of less than 325 psi or more than 400 psi.

(1) Pumps shall be designed for at least 250 p.s.i. working pressure. Positive displacement pumps shall have, installed off the discharged port, a constant differential relief valve discharging into the suction port of the pump through a line of sufficient size to carry the full capacity of the pump at relief valve setting, which setting and installation shall be according to the pump manufacturer's recommendations.

On the discharge side of the pump, before the relief valve line, there shall be installed a pressure gage graduated from 0 to 400 p.s.i.

Plant piping shall contain shutoff valves located as close as practical to pump connections.

(2) Compressors used for transferring or refrigerating ammonia shall be recommended for ammonia service by the manufacturer.

Compressors shall be designed for at least 250 p.s.i. working pressure.

Plant piping shall contain shutoff valves located as close as practical to compressor connections.

A relief valve large enough to discharge the full capacity of the compressor shall be connected to the discharge before any shutoff valve.

Compressors shall have pressure gages at suction and discharge graduated to at least one and one–half times the maximum pressure that can be developed.

Adequate means, such as drainable liquid trap, shall be provided on the compressor suction to minimize the entry of liquid into the compressor.

Where necessary to prevent contamination, an oil separator shall be provided on the discharge side of the compressor.

(g) The filling densities for containers that are not refrigerated shall not exceed the following:

| *Type of Container* | *Percent By Weight* | *Percent By Volume* |
|---|---|---|
| Uninsulated | 56 | 82 |
| Uninsulated (see 509(h) ) | | 87.5 |
| Insulated | 57 | 83.5 |

D.O.T. In accordance with D.O.T. Regulations

(h) Uninsulated containers may be charged 87.5 percent by volume provided the temperature of the anhydrous ammonia being charged is determined to be not lower than 30° F or provided the charging of the container is stopped at the first indication of frost or ice formation on its outside surface and is not resumed until such frost or ice has disappeared.

Any container, including DOT cargo and portable tanks, shipped under DOT jurisdiction shall be filled according to DOT regulations.

(i) Every portable unloading facility shall comply with the following additional requirements:

(1) A set of written instructions shall be posted at the location or supplied to the operating personnel, describing in detail the proper procedures to follow in operating the transfer equipment.

(2) A container of at least 5 gallons of fresh water shall be located at this facility. This container shall have a suitable opening to permit the application of water to flush the eyes. (A suitable deluge–type, fresh–water shower may be installed in lieu of the above if connected to a reliable source of supply.)

(3) The point of delivery from portable transfer facilities shall be in compliance with the requirements for stationary tanks, as listed in Section 501 (c); except that such point of delivery may be less than 50 feet but not less than 25 feet, from a highway or main track of a railroad.

(4) The working area at the portable transfer facility shall be kept clear of debris, and all compressors, pumps, hoses, valves, etc., shall be protected from vehicle impact. Such equipment shall also be suitably locked or otherwise confined when unattended, to prevent the release of ammonia to the atmosphere by unauthorized persons.

(5) The portable unloading facility must be secured at the end of each period of operation; i.e., the point at which it becomes unattended, the end of a workday, etc.

The facility will be considered secured when all ammonia liquid is confined in the pressure vessel and the gas pressure in any hose is less than 25 psi.

(6) All pressure vessels, hoses, piping, fittings, etc., shall be as required elsewhere in these orders for anhydrous ammonia in the liquid state (high pressure).

NOTE: Portable transferring facilities for anhydrous ammonia is defined as any site at which anhydrous ammonia is transferred from one pressure vessel to another in which the compressor and receiving vessel are not permanently installed on concrete in accordance with Safety Section 501.

(j) Compressors, excepting those on farm vehicles, shall be equipped with manually operated shutoff valves on both suction and discharge connections. Pressure gages of bourdon–tube type shall be installed on the suction and discharge of the compressor before the shutoff valves. The compressor shall not be operated if either pressure gage is removed or is inoperative. A spring–loaded safety–relief valve capable of discharging to atmosphere the full flow of gas from the compressor at a pressure not exceeding 300 p.s.i. shall be connected between the compressor discharge and the discharge shutoff valve.

(k) Valve functions shall be clearly and legibly identified by metal tags or nameplates permanently affixed to each valve.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
3. Amendment of subsection (d) filed 5–6–77; effective thirtieth day thereafter (Register 77, No. 19).

## § 510. Hose Specifications.

(a) Hose and hose connections shall be fabricated of materials that are resistant to the action of anhydrous ammonia. Hose used in ammonia service shall conform to ANI–RMA (or TFI–RMA) Standard No. M–5 for anhydrous ammonia hose. (TFI–RMA) stands for The Fertilizer Institute–Rubber Manufacturers Association.)

Metallic hose is a hose in which the strength depends primarily upon the strength of its metallic parts, but it may have nonmetallic liners and/or covers. The metal used in this hose shall be stainless steel or other suitable materials acceptable to the Division.

All hose and hose connections subjected to tank pressure shall be designed for a minimum working pressure of 350 psi with a factor of safety of at least 5.

After the hose connections are made up, they shall withstand without leakage a test pressure of twice the working pressure for which the hose is designed.

Hose and hose connections located on the low–pressure side of pressure–reducing valves or devices and discharging to atmospheric pressure shall be designed for a working pressure of at least 125 psi with a factor of safety of at least 5.

(b) All hose 1/2 inch in diameter and larger used for either liquid or vapor service shall be permanently and clearly marked at intervals of not more than 5 feet with the following information:

(1) The words "Anhydrous Ammonia" or "$NH_3$"

(2) The designed working pressure

(3) The manufacturer's name or trademark

(4) The year of manufacture

Hose smaller than 1/2 inch in diameter need only be marked with items (1) and (2) above.

(c) All anhydrous ammonia hoses and hose connections subjected to tank pressure shall be tested at least once each year to twice the tank working pressure but not less than 500 psi. While in transit all hoses and hose connections shall be protected from wear or injury.

All low–pressure hose shall be constructed for ammonia service with a factor of safety of at least 5, but in no case shall hose be used for this service unless designed for a working pressure of at least 125 psi with a factor of safety of at least 5.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).

2. Amendment of subsections (a) and (c) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).

## § 511. Safety Relief Valves.

(a) Every vessel used in anhydrous ammonia service shall be fitted with 1 or more safety relief valves in direct communication with the vapor space. These safety relief valves shall be of the spring–loaded type suitable for anhydrous ammonia service. The discharge from safety relief valves shall be full size and be directed away from the vessel, and shall discharge upward and unobstructed to the open air.

All relief–valve discharge openings shall have suitable loose–fitting rain caps that will allow free discharge of the vapor and prevent entrance of water. Provision shall be made for draining condensate which may accumulate in the discharge pipe.

The safety relief valves for anhydrous ammonia service shall be set to start to discharge with relation to the allowable working pressure of the vessel as follows:

| *Pressure vessels constructed in accordance with:* | *Minimum* | *Maximum* |
|---|---|---|
| Code paragraphs U–68 and U–69 | 110% | 125% |
| Code paragraphs U–200, through 1974 edition | 100% | 110% |
| API–ASME Code | 100% | 110% |
| DOT Cylinders | As required by DOT Regulations | |

(b) Except for code paragraphs U–68 and U–69 tanks, the discharge capacity of safety relief valves for anhydrous ammonia tanks shall be sufficient to prevent pressure in the tank from exceeding 120 percent of the allowable working pressure of the tank. ASME code paragraphs U–68 and U–69 tanks shall have safety valve capacity sufficient to prevent pressure in the tank from exceeding 135 percent of the allowable working pressure of the tank. All safety relief valves required by this Order shall be ASME rated and stamped. The minimum required rate of discharge of safety relief valves for anhydrous ammonia tanks shall be in accordance with the following table:

| *Surface area sq. ft.* | *Flow rate CFM air* | *Surface area sq. ft.* | *Flow rate CFM air* | *Surface area sq. ft.* | *Flow rate CFM air* |
|---|---|---|---|---|---|
| 20 or less | 258 | 185 | 1,600 | 900 | 5,850 |
| 25 | 310 | 190 | 1,640 | 950 | 6,120 |
| 30 | 360 | 195 | 1,670 | 1,000 | 6,380 |
| 35 | 408 | 200 | 1,710 | 1,050 | 6,640 |
| 40 | 455 | 210 | 1,780 | 1,100 | 6,900 |
| 45 | 501 | 220 | 1,850 | 1,150 | 7,160 |
| 50 | 547 | 230 | 1,920 | 1,200 | 7,410 |
| 55 | 591 | 240 | 1,980 | 1,250 | 7,660 |
| 60 | 635 | 250 | 2,050 | 1,300 | 7,910 |
| 65 | 678 | 260 | 2,120 | 1,350 | 8,160 |
| 70 | 720 | 270 | 2,180 | 1,400 | 8,410 |
| 75 | 762 | 280 | 2,250 | 1,450 | 8,650 |
| 80 | 804 | 290 | 2,320 | 1,500 | 8,900 |
| 85 | 845 | 300 | 2,380 | 1,550 | 9,140 |
| 90 | 885 | 310 | 2,450 | 1,600 | 9,380 |
| 95 | 925 | 320 | 2,510 | 1,650 | 9,620 |
| 100 | 965 | 330 | 2,570 | 1,700 | 9,860 |
| 105 | 1,010 | 340 | 2,640 | 1,750 | 10,090 |
| 110 | 1,050 | 350 | 2,700 | 1,800 | 10,330 |
| 115 | 1,090 | 360 | 2,760 | 1,850 | 10,560 |
| 120 | 1,120 | 370 | 2,830 | 1,900 | 10,800 |
| 125 | 1,160 | 380 | 2,890 | 1,950 | 11,030 |
| 130 | 1,200 | 390 | 2,950 | 2,000 | 11,260 |
| 135 | 1,240 | 400 | 3,010 | 2,050 | 11,490 |
| 140 | 1,280 | 450 | 3,320 | 2,100 | 11,720 |
| 145 | 1,310 | 500 | 3,620 | 2,150 | 11,950 |
| 150 | 1,350 | 550 | 3,910 | 2,200 | 12,180 |
| 155 | 1,390 | 600 | 4,200 | 2,250 | 12,400 |
| 160 | 1,420 | 650 | 4,480 | 2,300 | 12,630 |
| 165 | 1,460 | 700 | 4,760 | 2,350 | 12,850 |
| 170 | 1,500 | 750 | 5,040 | 2,400 | 13,080 |
| 175 | 1,530 | 800 | 5,300 | 2,450 | 13,300 |
| 180 | 1,570 | 850 | 5,590 | 2,500 | 13,520 |

Surface area = total outside surface area of container in square feet. When the surface area is not stamped on the nameplate or when the marking is not legible, the area can be calculated by using one of the following formulas:

(1) Cylindrical container with hemispherical heads.

Area = overall length in feet times outside diameter in feet times 3.1416

(2) Cylindrical containers with other than hemispherical heads.

Area = (overall length in feet plus 0.3 outside diameter in feet) times outside diameter in feet times 3.1416

(3) Spherical container.

Area = outside diameter in feet squared times 3.1416

Flow rate—CFM Air = cubic feet per minute of air required at standard conditions, 60 degrees Fahrenheit and atmospheric pressure (14.7 psia).

The rate of discharge may be interpolated for intermediate values of surface area. For containers with total outside surface area greater than 2,500 square feet, the required flow rate can be calculated using the formula: Flow Rate CFM Air = $22.11A^{0.82}$, where A = outside surface area of the container in square feet.

The minimum required rate of discharge of safety relief valves for anhydrous ammonia DOT cylinders shall be in accordance with the regulations of the Bureau of Explosives.

(c) Safety relief valves shall be so designed and installed that the possibility of tampering will be minimized. If the pressure setting is external, the relief valves shall be provided with acceptable means for sealing the adjustment.

(d) Shutoff valves shall not be installed between the safety relief valve and tank, except that a shutoff valve may be used where the arrangement of this valve is such as always to provide full required capacity flow through sufficient relief valves to properly protect the tank. [This exception is intended to permit 3–way valves, mechanically interconnected valves, etc., to be installed between the tank and safety valve where the installation and arrangement will always permit the required number of valves to be in communication with the tank to provide the relief capacity required by (b) above.]

The flow capacity of the relief valve shall not be restricted by any connection to it on either the upstream or downstream side.

(e) Each safety relief valve used on anhydrous ammonia tanks shall be plainly marked with the following information:

(1) With the letters "AA."

(2) The pressure in pounds per square inch gage (psig) at which the valve is set to start to discharge.

(3) The rate of discharge of the valve at its full open position in cubic feet per minute (cfm) of air.

(4) The manufacturer's name and catalog number.

(5) The symbol of the ASME Code.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).
2. Amendment of subsections (a) and (d) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).

## § 512. Repairs and Alterations.

(a) Field welding, where necessary, shall be made only on nonpressure parts that were installed by the manufacturer of the tank.

(b) No repairs or alterations involving flame, arc, or other method of welding shall be made to any tank until such tank has first been certified as free of anhydrous ammonia by competent personnel.

(c) No repair or alteration affecting the safety of the tank shall be made until the contemplated repair or alteration has been authorized by a qualified inspector. Nothing in this order shall prohibit the exchange or interchange of valves, fitting, and appurtenances intended for the same purpose.

(d) No tank that has been subjected to a fire shall be returned to service until it has been inspected by a qualified inspector and found to be safe.

(e) Any vessel requiring repair or alteration or that has been subjected to a fire shall be prepared for hydrostatic test by the owner when such test is deemed necessary by the qualified inspector.

(f) All repairs affecting the safety of the tank shall be reported to the Division within 21 days by the qualified inspector authorizing such repairs. The qualified inspector shall stamp his certificate of competency

number adjacent to all welded repairs authorized by him, except that in the case of repairs to quenched and tempered steels, this number need not be stamped. This exception shall be noted on the inspector's report.

(g) Any welding necessary when making repairs or alterations to tanks shall be done by welders and welding procedures qualified in accordance with Section IX of the ASME Code in the position or positions used in making the repair.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).

## § 513. Anhydrous Ammonia Refrigeration Systems.

Mechanical refrigeration systems using anhydrous ammonia as a refrigerant shall be installed and maintained according to the provisions of the General Industry Safety Orders.

HISTORY

1. Amendment filed 12–8–72 as procedural and organizational; effective upon filing (Register 72, No. 50).

## § 514. Installation of Refrigerated Storage Containers.

(a) Containers shall be supported on suitable noncombustible foundations designed to accommodate the type of container being used.

Adequate protection against flotation or other water damage shall be provided wherever high flood water might occur.

Containers for product storage at less than 32° F shall be supported in such a way, or heat shall be supplied, to prevent the effects of freezing and consequent frost heaving.

(b) A check valve shall be installed in lieu of the required excess flow valve on the fill connection, except when flow is needed in both directions, and a remotely operated shutoff valve shall be installed on all other connections located below the maximum liquid level.

(c) The filling density for refrigerated storage containers shall be such that the container will not be liquid full at a liquid temperature corre-

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sponding to the vapor pressure at the start-to-discharge pressure setting of the safety-relief valve.

(d) Safety-relief valves shall be set to start-to-discharge at a pressure not in excess of the design pressure of the container and shall have a total relieving capacity sufficient to prevent a maximum pressure in the container of more than 120 percent of the design pressure. Relief valves for refrigerated storage containers shall be self-contained spring-loaded, weight-loaded, or self-contained pilot-operated type.

The total relieving capacity shall be the larger of:

(1) Possible refrigeration system upset such as (A) cooling water failure, (B) power failure, (C) instrument air or instrument failure, (D) mechanical failure of any equipment, (E) excessive pumping rates.

(2) Fire exposure determined in accordance with Compressed Gas Association (CGA) S-1, Part 3, Safety Relief Device Standards For Compressed Gas Storage Containers, 1959, except that "A" shall be the total exposed surface area in square feet up to 25-foot above grade or to the equator of the storage container if it is a sphere, whichever is greater. If the relieving capacity required for fire exposure is greater than that required by (1) of this subdivision, the additional capacity may be provided by weak roof-to-shell seams in containers operating at essentially atmospheric pressure and having an inherently weak roof-to-shell seam. The weak roof-to-shell seam is not to be considered as providing any of the capacity required in (1) of this subdivision.

If vent lines are installed to conduct the vapors from the relief valve, the back pressure under full relieving conditions shall not exceed 50 percent of the start-to-discharge pressure for pressure balanced valves or 10 percent of the start-to-discharge pressure for conventional valves. The vent lines shall be installed to prevent accumulation of liquid in the lines.

The valve or valve installation shall provide weather protection.

Atmospheric storage shall be provided with vacuum breakers. Ammonia gas, nitrogen, methane, or other inert gases can be used to provide a pad.

(e) Appurtenances shall be protected against tampering and physical damage.

(f) Containers of such size as to require field fabrication shall, when moved and reinstalled, be reconstructed and reinspected in complete accordance with the requirements under which they were constructed. The containers shall be subjected to a pressure retest and if rerating is necessary, rerating shall be in accordance with applicable requirements.

(g) Precaution shall be taken against damage from vehicles.

(h) The total refrigeration load shall be computed as the sum of the following:

(1) Load imposed by heat flow into the container caused by the temperature differential between design ambent temperature and storage temperature.

(2) Load imposed by heat flow into the container caused by maximum sun radiation.

(3) Maximum load imposed by filling the container with ammonia warmer than the design storage temperature.

More than one storage container may be handled by the same refrigeration system.

(i) A minimum of two compressors shall be provided, either of which shall be of sufficient size to handle the loads listed in Section 514(h)(1) and (2). Where more than two compressors are provided, minimum standby equipment equal to the largest normally operating equipment shall be installed. Filling compressors may be used as standby equipment for holding compressors.

Compressors shall be sized to operate with a suction pressure at least 10 percent below the minimum setting of the safety valve(s) on the storage container and shall withstand a suction pressure at least equal to 120 percent of the design pressure of the container.

(j) Each compressor shall have its individual driving unit.

An emergency source of power of sufficient capacity to handle the loads listed in Section 514(h)(1) and (2) shall be provided unless facilities are available to safely dispose of vented vapors while the refrigeration system is not operating.

(k) The refrigeration system shall be arranged with suitable controls to govern the compressor operation in accordance with the load as evidenced by the pressure in the container(s).

An emergency alarm system shall be installed to function in the event the pressure in the container(s) rises to the maximum allowable operating pressure.

An emergency alarm and shutoff shall be located in the condenser system to respond to excess discharge pressure caused by failure of the cooling medium.

All automatic controls shall be installed in a manner to preclude operation of alternate compressors unless the controls will function with the alternate compressors.

(l) An entrainment separator of suitable size and design pressure shall be installed in the compressor suction line of lubricated compression. The separator shall be equipped with a drain and gaging device.

An oil separator of suitable size shall be installed in the compressor discharge line. It shall be designed for at least 250 p.s.i. and shall be equipped with a gaging device and drain valve.

(m) The condenser system may be cooled by air or water or both. The condenser shall be designed for at least 250 p.s.i. Provision shall be made for purging noncondensibles either manually or automatically.

(n) A receiver shall be provided with a liquid-level control to discharge the liquid ammonia to storage. The receiver shall be designed for at least 250 p.s.i. and be equipped with the necessary connections, safety valves, and gaging device.

(o) Refrigerated containers and pipelines which are insulated shall be covered with a material of suitable quality and thickness for the temperatures encountered. Insulation shall be suitably supported and protected against the weather. Weatherproofing shall be of a type which will not support flame propagation.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).

### § 515. Systems Utilizing Portable DOT $NH_3$ Containers.

(a) Cylinders shall comply with DOT specifications and shall be maintained, filled, packaged, marked, labeled, and shipped to comply with 49 CFR Chapter 1 and Marking Portable Compressed Gas Containers to Identify the Material Contained, ANSI Z48.1-1954 (R1970).

(b) Cylinders shall be stored in an area free from ignitable debris and in such manner as to prevent external corrosion. Storage may be indoors or outdoors.

(c) Cylinders filled in accordance with DOT regulations will become liquid full at 145° F. Cylinders shall be protected from heat sources such as radiant flame and steampipes. Heat shall not be applied directly to cylinders to raise the pressure.

(d) Cylinders shall be stored in such manner as to protect them from moving vehicles or external damage.

(e) Any cylinder which is designed to have a valve protection cap shall have the cap securely in place when the cylinder is not in service.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).

## Article 7. Compressed and Liquefied Natural Gas System*

*For Appendix A, refer to end of Subchapter 1.

The provisions of Article 7 apply to the storage, dispensing and use of natural gas as a motor fuel, but do not apply to the storage or use of natural gas on public roads and highways.

### § 523. Design and Construction of Natural Gas Tanks.

(a) General. All new natural gas tanks shall be constructed, inspected, and stamped in compliance with the Code, unless the design, material, and construction of the tank are accepted by the Division as equivalent to code.

(b) Compressed Natural Gas. In addition to the stamping required by the Code, the stamping on all new CNG tanks shall include the following:

(1) Volumetric capacity in standard cubic feet of natural gas when filled to the limits provided by these regulations.

(2) The words "For CNG."

(3) The head and shell thicknesses.

(c) Liquefied Natural Gas. The outer vessel of double wall cryogenic vessels shall be designed for the full range of pressure and/or vacuum to which it will be subjected and for adequate structural support of the inner tank and insulation under all imposed loadings. Equipment shall For Appendix A, refer to end of subchapter 1.

In addition to the stamping required by the Code, the stamping for all new LNG tanks shall include the following:

(1) Net volumetric capacity in U. S. gallons.

(2) The words "For LNG."

(3) The head and shell thicknesses.

(4) Minimum safety relief valve capacity in cfm air. See 541 (c) (1) and (2).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code, and Chapter 855, Statutes of 1977.

HISTORY

1. Repealer of Article 7 (Section T8–550) and new Article 7 (Sections 523–544) filed 12–8–72 as an emergency; effective upon filing. Certificate of Compliance included (Register 72, No. 50).
2. Amendment of subsection (c) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).
3. Amendment of subsection (a) filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14).
4. Amendment filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
5. Amendment of article 7 headnote filed 9–25–2002 as an emergency; operative 9–25–2002 (Register 2002, No. 39). A Certificate of Compliance must be transmitted to OAL by 1–23–2003 or emergency language will be repealed by operation of law on the following day.
6. Certificate of Compliance as to 9–25–2002 order transmitted to OAL 1–17–2003 and filed 2–24–2003 (Register 2003, No. 9).

### § 524. Design and Construction of Compressed Natural Gas Cylinders.

All new natural gas cylinders shall be constructed for the service pressure specified in and meet other DOT regulations.

### § 525. Design and Construction of LNG Vaporizers.

HISTORY

1. Amendment of subsection (a) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).
2. Change without regulatory effect repealing Section 525 (Register 88, No. 15).

### § 526. Repairs and Alterations to Tanks, Welded Piping and to Welded Vaporizers Having a Volumetric Capacity in Excess of 1 U. S. Gallon.

(a) No repairs or alterations involving flame, arc or other method of welding shall be made on any tank, vaporizer or piping unless such tank, vaporizer or piping shall first have been certified as natural gas free or oxygen free by competent personnel.

(b) No repair or alteration to a natural gas tank or welded vaporizer which affects the safety of such natural gas tank or welded vaporizer shall be made until the contemplated repair or alteration has been authorized by a qualified inspector. The exchange or interchange of valves, fittings and accessories intended for the same purpose need not be considered a repair or alteration.

(c) No tank, vaporizer or piping system that has been subjected to possible damage by fire shall be returned to service until it has been inspected by a qualified inspector and found to be safe.

(d) Any vessel, vaporizer or piping requiring repair or alteration or that has been subjected to a fire shall be prepared for hydrostatic test by the owner when such test is deemed necessary by the qualified inspector.

(e) No repairs shall be performed on any natural gas fueled motor vehicle nor on a transport tank, trailer or skid tank, whether empty or loaded, until reasonable precaution has been taken to provide the required safety.

(f) All repairs to natural gas tanks or vaporizers affecting the safety of such tanks or vaporizers shall be reported to the Division within 21 days by the qualified inspector authorizing such repairs. The qualified inspector shall stamp his certificate of competency number adjacent to all welded repairs authorized by him except that in the case of repairs to quenched and tempered steels, this number need not be stamped. This exception shall be noted in the inspector's report.

(g) Any welding necessary when making repairs or alterations to tanks, vaporizers or piping shall be done according to welding procedures and by welders qualified in accordance with the rules of Section IX of the ASME Code in the position or positions used in making the repair.

(h) Repairs to DOT cylinders shall be made under DOT regulations and control.

### § 527. Control of Products in Tanks and Cylinders.

(a) General. Natural gas contaminants such as hydrogen sulfide and water shall be so minimized as to prevent any adverse effects on storage and utilization equipment.

(b) Compressed Natural Gas.

No natural gas shall be delivered into any vessel or system covered by these Safety Orders unless odorized. The gas shall have a distinctive odor of sufficient intensity so that the presence of the gas may be detected down to the concentration in air of not over 20 percent of the lower explosive limit. Odorants in the concentrations used shall be:

(1) Harmless to humans.

(2) Non–toxic.

(3) Non–corrosive to steel, iron, brass or copper.

(4) Non–soluble in water to an extent greater than 2.5 parts by weight of odorant to 100 parts by weight of water.

(5) Be compatible with natural gas at the pressures and temperatures to be encountered in storage, transfer and service.

(c) Liquefied Natural Gas.

The delivery of LNG into any vessel or system covered by these Orders shall be subject to monitoring by a methane gas detection system, as follows:

(1) Each methane gas detection system required by this section shall provide a warning when an airborne methane gas concentration exceeding 20 percent of the lower explosive limit is detected. The warning shall be plainly audible and visible to those within the zone of potential exposure to fire or explosion of the vessel, system, or delivery operation.

(2) Where LNG is delivered into a vessel or system that is part of a motor vehicle, the methane gas detection system shall function continuously during the course of the delivery operation so that methane leaks resulting in an airborne concentration exceeding 20 percent of the lower explosive limit will be detected in the immediate vicinity of the operation.

(3) Where LNG is delivered to any other vessel or system covered by these Orders, the methane gas detection system shall function continuously during the course of the delivery operation so that methane gas leaks resulting in an airborne concentration exceeding 20 percent of the lower explosive limit will be detected in the immediate vicinity of the operation and the entire vessel or system into which the LNG is delivered. After delivery is completed, the methane gas detection system shall be operated continuously in the immediate vicinity of the entire vessel or system into which the LNG was delivered for as long as the vessel or system contains LNG.

(4) Nothing in this section is intended to supercede or alter the applicable requirements of 13 CCR Section 935.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (a) and (b), new subsections (c)–(c)(4) and new NOTE filed 9–25–2002 as an emergency; operative 9–25–2002 (Register 2002, No. 39). A Certificate of Compliance must be transmitted to OAL by 1–23–2003 or emergency language will be repealed by operation of law on the following day.
2. Certificate of Compliance as to 9–25–2002 order, including further amendment of subsections (b) and (c)(1)–(3), transmitted to OAL 1–17–2003 and filed 2–24–2003 (Register 2003, No. 9).

## § 528. Transfer, Operation and Maintenance.

(a) General.

(1) No natural gas shall be vented to the atmosphere unless the vent is led to a safe point of discharge. Nothing in this Order shall prohibit the use of gaging devices which vent to the atmosphere through an opening not exceeding No. 54 drill size.

(2) No smoking or open flame shall be permitted within 10 feet of any vessel during the filling operation.

(3) All threaded filling connections shall be kept effectively capped when not in use. These caps or plugs shall be so designed that they will vent to the atmosphere while at least 3 full threads are engaged.

(4) No employer or employee shall charge natural gas into any tank or cylinder not specifically designed for the most severe pressure and temperature conditions to which the vessel may be subjected.

(5) During the transfer of natural gas at least one attendant familiar with the transfer operation shall be responsible for and be on the premises during the transfer operation. During the transfer of LNG the attendant shall remain in attendance at the controls necessary to stop the transfer operation. The attendant required by this Order may be considered familiar with the transfer operation after he has been provided with a set of instructions for the transfer operation and has performed the operation at least through 3 full cycles under supervision. When natural gas is being transferred to or from a motor vehicle, the engine shall be stopped unless the motor is used to operate a pump or compressor required to transfer the product. During such loading or unloading from transportation tanks, the hand or emergency brake of the vehicle shall be set and the wheels blocked. Transportation tanks shall be bonded during the transfer operation except that bonding is not required where the transfer systems are depressurized by bleeding before disconnecting, see Paragraph 537 (a)(4), and providing also that closed connections are made before transfer begins.

(6) No natural gas shall be transferred with the point of delivery less than 10 feet from any important building or house trailer, or within 5 feet

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from a sidewalk or public highway, street or road unless the failure to transfer would create a hazard. At the discretion of the Division, the point of delivery may be located a lesser distance from important buildings constructed of concrete or masonry materials. Nothing in this Order shall be so construed as to prohibit the following:

(A) The fueling of machinery or vehicles used in road construction or maintenance.

(B) The filling of motor fuel tanks or cylinders of not more than 30-gallon capacity.

(7) Pumps and compressors shall be suitable for use with the product to be handled for the full range of pressure and temperature to which they may be subjected. Positive displacement transfer pumps shall be equipped with a pressure actuated bypass valve and/or a recirculating system which shall limit the pressure to the maximum design pressure of the pump or piping system whichever is lower.

(8) Control devices shall be designed for the pressure, temperature and service expected and shall be so installed that icing conditions will not cause malfunction.

(9) The owner and/or user shall maintain all pressure vessels and their appurtenances, piping systems, vaporizers, controls and devices in a safe condition.

(10) A portable fire extinguisher having a rating of not less than 20BC shall be provided at the transfer operation area.

(b) Compressed Natural Gas.

(1) The pressure to which a CNG tank is charged shall not exceed the maximum allowable working pressure of the tank being filled at normal temperature. DOT cylinders shall be charged in accordance with DOT pressure and temperature regulations.

(c) Liquefied Natural Gas.

(1) To provide for the expansion of LNG with temperature, the tanks shall not be filled beyond the level specified by the tank manufacturer and in no case more than 90 percent.

(2) Tank fuel loading and unloading areas shall be substantially level.

### § 529. Gaging Devices for Liquefied Natural Gas Tanks.

(a) A permanent dip pipe shall be installed in all LNG tanks filled by volume and shall be of such length that it will indicate when the tank is filled to the level specified by the manufacturer and in no case more than 90 percent. This fixed dip pipe shall be permanently installed in the tank. Additional dip pipes may be used providing they are permanently marked to show the outage they indicate.

(b) In addition to the fixed dip pipe required in (a) above, each LNG tank 60-gallon capacity or more, filled by volume, and each motor fuel tank shall be equipped with a liquid level gage.

(c) Gaging devices that require bleeding of the product to the atmosphere shall be so designed that the maximum opening of the bleeder valve is No. 54 drill size.

(d) Gaging devices shall be designed for the most severe pressure and temperature conditions to which the device may be subjected with a factor of safety of not less than 4. Such gaging devices shall be labeled with the maximum permitted pressure by the manufacturer.

(e) Where the efficiency of the insulation of an insulated tank is dependent upon the vacuum in an annular space, an indicating device or other means shall be provided to warn of loss of vacuum.

### § 530. Approval of Devices.

(a) All devices which are used in natural gas installations shall be of a type and construction suitable for their intended use. The Division may approve or accept devices or package units upon satisfactory evidence that they are designed and constructed for safe operation in natural gas service.

(b) Except for control and indicating devices that are also designed for natural gas and which have an orifice not larger than No. 54 drill size, natural gas shall not be used to operate any device or equipment designed to be operated with compressed air which exhausts to the atmosphere. Natural gas vapor shall not be released into the air except as permitted by these Orders.

(c) All natural gas devices not otherwise specifically provided for shall be constructed and installed to provide safety equivalent to that required for other parts of the system.

(d) All electrical wiring and electrical equipment used with natural gas storage or dispensing apparatus shall be in accordance with the Electrical Regulations administered by the Division.

For the purpose of this Order 530 (d), the electrical equipment installed in out-of-doors installations for stationary storage or the transfer of natural gas shall be suitable for use in a Class 1, Division 1, Group D hazardous location when installed within 10 feet in any direction of any connection used for the transfer of natural gas.

In order to comply with the "source of ignition" provisions of Order 531 (a) electrical switches, lamps, etc., located outside the above 10-foot area, but within the area specified in Order 531 (a) shall be suitable for use in a Class 1, Division 2, Group D, hazardous location. All electrical motors within this area shall be suitable for use in out-of-doors locations and shall be either:

(1) Of the explosion-proof type.

(2) Of a type having no contactors, commutators or sparking parts.

(3) Of a totally enclosed type.

### § 531. Location of Storage Tanks and Regulating Equipment.

(a) General.

(1) Except as provided elsewhere in these Orders, tanks, cylinders and regulating equipment used with natural gas storage and/or dispensing installations shall be located outside of buildings. Each individual tank or cylinder used for storage or dispensing natural gas shall be located with respect to the nearest important building, or line of adjoining property which may be built upon, or source of ignition, in accordance with the following table:

| *Capacity Per Storage Tank or Bank of Cylinders U. S. Gallons* | *Minimum Distance In Feet* | *Distance Between Above Ground Storage Tanks, Feet* |
|---|---|---|
| To 500 | 10 | 3 |
| 501 To 2,000 | 25 | 3 |
| 2,001 To 30,000 | 50 | 5 |
| 30,001 To 70,000 | 75 | 1/4 of Sum of Diameter of Adjacent Tanks with |
| 70,001 To 90,000 | 100 | a Minimum of 5 Feet |

NOTE: At the discretion of the Division, tanks may be located a lesser distance from important buildings constructed of concrete or masonry materials.

(2) No stationary storage vessel shall be located less than 10 feet from the nearest street line or sidewalk, nor less than 50 feet from the nearest rail of any railroad main track.

The distance between underground tanks shall be not less than 12 inches.

(3) Except as permitted in Section 543, filling connections shall not be located less than 10 feet from any opening into or under a building closed on more than 3 sides for filling connections 1/2-inch pipe size or less and 15 feet for larger sized filling connections.

(4) Readily ignitible material shall not be permitted within 10 feet of any stationary vessel or vaporizer.

(5) Regulators which are vented to atmosphere shall be installed in such a manner that moisture cannot enter the vent and accumulate above the diaphragm. Where the regulator vent may be obstructed due to rain, snow or icing conditions, shields, hoods or other suitable devices shall be provided to guard against closing the vent opening.

(b) Compressed Natural Gas.

(1) Multiple cylinder units or groups stored in the vertical position shall be limited to a width of no more than 4 cylinders. Units or groups stored in the horizontal position shall be limited to a height of 6 and a

width of 4 cylinders. When stacked horizontally, the units or groups shall be separated by not less than 3 feet.

(2) No cylinder filling platform shall be located less than 10 feet from any storage tank, or 25 feet from the nearest important building or line of adjoining property that may be built upon. At the discretion of the Division, cylinder filling platforms may be located a lesser distance from important buildings constructed of concrete or masonry materials.

(c) Liquefied Natural Gas.

(1) All aboveground LNG tanks larger than 2,000 gallons shall have diked impounding areas or equivalent in accordance with Pamphlet 59–A of the National Fire Protection Association.

### § 532. Installation of Aboveground Storage Tanks.

(a) General.

(1) Storage tanks installed aboveground shall be installed on firm masonry or concrete foundations. Aboveground horizontal tanks shall have no more than 2 points of support longitudinally. Where necessary, tanks shall be securely anchored to prevent floating.

(2) Metallic structural supports, when used, shall be encased in concrete or other material having a fire resistant rating of at least 2 hours when the distance between the lower surface of the tank and the top of the concrete or masonry foundations exceeds 18 inches. In the case of a vertical tank having no more than one opening in the support skirt, interior fire protection of the skirt may be omitted. (Tanks of not more than 575–gallon capacity installed in areas having an average snowfall exceeding 18 inches may, at the discretion of the Division, be exempt from the provisions of this paragraph.)

(3) Every tank shall be so supported as to prevent the concentration of excessive loads on the tank at the points of support. All foundations and fastenings shall be designed to provide reasonable safety under all imposed loads including wind, earthquake, vibrations, etc. All tanks over 1,200 gallons capacity shall be installed on foundations in such a manner as to permit expansion and contraction.

(4) The valves and other appurtenances on tanks at all bulk plants, if the plant is not otherwise fenced, shall be surrounded by a rugged steel fence or equivalent. Fences which are not of an open mesh type may be used providing they are acceptable to both the local fire department and the Division. The fence required by this Section shall be at least 6 feet in height. Any fence completely surrounding the tank shall be located a minimum distance of 3 feet from the tank. Other tanks shall also be surrounded by a rugged steel fence or equivalent, if in the opinion of the Division a fence is needed to prevent unauthorized tampering. All fenced areas shall be kept locked when unattended.

(5) Aboveground storage tanks shall be protected from impact from trucks, trailers and other vehicles, where such impact is likely or probable, by suitable curbs, fences or posts and railings. Such curbs or fences shall be arranged so that they will not hamper free ventilation around the tanks.

(6) All loading and unloading connections at bulk plants shall be secured to a concrete bulkhead or equivalent designed to withstand the load imposed by the strongest pipe, hose or flexible metal hose, and fittings to be used in the transfer operation without breaking, or 2,000 pounds whichever is greater unless other adequate protection is provided. This bulkhead shall not be located underneath the tank. The loading and unloading connections shall be firmly secured to this bulkhead and the line between the bulkhead and tank shall be installed in a manner to provide for expansion, contraction, jarring, vibration and settling. Such bulkhead shall be located no less than 25 feet from the nearest important building or line of property adjoining that may be built upon. When in the opinion of the Division such bulkhead is necessary for the safety of the place of employment, it shall be required at storage plants other than bulk plants mentioned above.

(7) The fill line on storage tanks shall be equipped with a back–flow check valve to prevent discharge of the natural gas from the receiving tank in case of line, hose or fittings rupture.

(8) A fire extinguisher conforming to the provisions of California Administrative Code, Title 19, Chapter 1, Subchapter 3, and having a rating of not less than 20B shall be available and ready for use during the time natural gas is being transferred. The extinguisher carried on a bulk delivery or transportation vehicle may be considered as meeting the requirements of this Order when transferring natural gas from or to such vehicle provided the extinguisher has the required rating listed above.

(b) Compressed Natural Gas.

(1) When the tank is installed directly on concrete or masonry foundations, a corrosion pad shall be provided at the points of contact with the foundation. These corrosion pads shall be at least 3/16–inch thick, and have a width at least equal to the width of the foundation at the point of contact with the tank, but in no case shall they be less than 8 times the shell thickness in width. When corrosion pads or pad–type steel supports are used, the pads shall have corners rounded to a radius of not less than 6 times the pad thickness, and shall be attached to the shell with a continuous seal weld. These pads shall be not less than 1/4 the circumference of the shell in length.

(2) Pressure vessels which are made of materials that are subject to corrosion by atmospheric conditions and which are not provided with an allowance for external corrosion by a suitable increase in the design thickness shall be protected by painting or other equivalent means necessary to check active corrosion.

(3) Cylinders used at dispensing stations shall be installed on firm concrete or masonry foundations and located in accordance with 531 (a) and (b).

(c) Liquefied Natural Gas.

(1) Supports for LNG tanks shall be designed to withstand low temperature effects of LNG spillage.

(2) LNG tanks installed in battery shall be so installed that the 90 percent outage levels or the top surfaces of the tanks are substantially in the same horizontal plane.

(3) Tanks installed in battery shall not be installed with liquid and/or vapor lines connecting into common headers unless either:

(A) The working pressure of all such tanks is the same.

(B) Check valves or other devices are installed in the system to prohibit the introduction of the higher pressure product into the lower pressure tank.

HISTORY

1. Amendment of subsection (b) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).

### § 533. Location and Installation of Underground Tanks.

(a) General. Tanks and regulating equipment shall not be buried below ground unless written permission to do so has been obtained from the Division and the following special conditions are complied with:

(1) The proposed location complies with Order 531 (a) (1), (2) and (3).

(2) The tank shall be set with the top at least 24 inches below the surface of the ground, shall rest on firm foundations and shall not be installed under roadways.

(3) Before any back–filling is done, the installation shall be inspected by a qualified inspector and shall comply with all applicable sections of these Orders.

(4) The back–filling shall be done in such a manner that there will be at least 6 inches of water–washed sand free from soil, rocks or gravel immediately adjacent to the tank. The sand shall be well tamped into place during the back–filling operation.

(5) All buried tanks shall be constructed for underground service and the manufacturer shall provide means for lowering the tank into place without damage to the tank or corrosion–resistant coating.

(6) If the valves and fittings are located in a curb box, adequate provision shall be provided for proper drainage and ventilation of the curb box.

(7) No curb box shall be larger than necessary for the operation and maintenance of the valves and fittings located therein nor more than 3 feet in depth.

(8) All buried tanks shall be completely uncovered for an inspection of all external surfaces at intervals of at least once every 3 years.

The intervals may be changed at the discretion of the Division if a test plate is buried adjacent to the tank and shows no appreciable corrosion on inspection after 3 years of service; provided, however, that every tank shall be uncovered at least every 15 years. The test plates shall be of the same material as the shell of the tank and shall be at least 1/4 of the tank diameter in length and 6 inches wide and shall be buried in water–washed sand at least as deep as the lowest surface of the tank, and shall not be coated. Test plates shall be provided in accordance with the following table:

(A) Tanks 10 feet or less in length, one test plate.

(B) Tanks more than 10 feet but less than 20 feet in length, 2 test plates, one on each side near opposite ends.

(C) Tanks 20 feet or more in length, one test plate for each 10 feet of length, placed on alternate sides at 10–foot intervals.

(9) No tank used underground shall be reinstalled aboveground until it has been inspected and found to be in compliance with requirements for an aboveground installation.

(10) Where necessary, tanks shall be securely anchored or weighted to prevent floating.

(b) Compressed Natural Gas.

The exterior surfaces of CNG tanks shall be covered with an acceptable corrosion–resistant material.

Tanks will be considered acceptable when prepared and coated as follows:

(1) Clean and prime.
(2) Coat with asphalt enamel.
(3) Wrap with 40–pound felt.
(4) Coat with asphalt enamel.
(5) Wrap with 40–pound felt.
(6) Coat with asphalt enamel.
(7) Wrap with Kraft paper.

Equivalent corrosion protection may be accepted at the discretion of the Division.

(c) Liquefied Natural Gas.

(1) LNG vessels utilizing a vacuum jacket shall be so installed that a vacuum leak can be detected, and so piped that means can be provided to restore the vacuum or minimize the leak.

(2) Consideration shall be given to the design and installation of the supporting members and surrounding materials in the possible freezing zone to prevent damage to the tank and its supports by low temperature effects of LNG spillage or by frost–heaving.

(3) LNG vessels having an outer jacket made of a material which may be subject to corrosion shall be protected in accordance with (b) above.

### § 534. Skid Tanks.

(a) Skid tanks shall be securely fastened to skids extending the full length of the tank, including fittings and guards at the end of the tank. The bottom of the skids shall be not less than 2 inches nor more than 12 inches below the outside bottom of the tank shell. The skids or lugs for attachment of the skids shall be secured to tanks in accordance with the Code or rules under which the tank is designed and built, and shall be designed to withstand the loaded weight of the tank in any direction with a factor of safety of at least 8.

(b) Fittings on skid tanks shall be installed in a recessed well or otherwise protected by means of adequate guards properly installed.

(c) Unless installed in compliance with Order 532, skid tanks shall not be used at any location for more than 180 days without written permission from the Division.

(d) When skid tanks are transported from one location to another, they shall be adequately secured to the transporting vehicle.

### § 535. Installation of Tanks on Transportation and Bulk Delivery Vehicles.

Transportation tanks shall comply with the regulations for such vehicles adopted by the Department of Highway Patrol.

### § 536. Piping Standards.

(a) General.

(1) All pipe, tubing, fittings and other piping components between the tank and the first shutoff valve shall be designed for the full range of pressures, temperatures and loadings to which they may be subjected with a factor of safety of at least 8 based on the minimum specified tensile strength at room temperature. All other pipe, tubing, fittings and other piping components shall be suitable for the full range of pressures, temperatures and loadings to which they may be subjected with a factor of safety of at least 4. In no case may underground piping be less than Schedule 80 for piping systems having a working pressure exceeding 100 psi. Any material used, including gaskets and packing, shall be compatible with natural gas and its service conditions.

(2) All piping and tubing shall be run as directly as practical with adequate provisions for expansion, contraction, jarring, vibration and settling. Exterior piping may be either buried or installed aboveground and shall be well supported and protected against mechanical damage.

Underground piping shall be buried not less than 18 inches below the surface of the ground unless otherwise protected. All underground piping shall be protected from corrosion by coating in compliance with Section 533 (b) or equivalent. Zinc coatings (galvanizing) shall not be considered adequate protection for piping below ground.

(3) All welded piping shall be fabricated and tested in accordance with the ANSI Code for Pressure Piping, Petroleum Refinery Piping, B31.3, 1966 Edition or equivalent.

(4) All valves shall be suitable for the full range of pressure and temperature to which they may be subjected. The manufacturer shall stamp or otherwise permanently mark the valve body to indicate the service ratings. Other piping components such as strainers, snubbers and expansion joints shall also be permanently marked by the manufacturer to indicate the service ratings. All materials such as valve seats, packing, gaskets, diaphragms, etc. shall be resistant to the action of natural gas under the conditions to which they are subjected.

(5) Use of the following is prohibited:

(A) Valves, cocks, fittings and other piping components of cast iron or semisteel other than ASTM Specifications A–536–67, Grade 60–40–18; A–395–68; A–47–68, Grade 35018 and A–445–66 unless they have pressure–temperature ratings at least equal to 1 1/2 times the design service conditions. In no case shall valves of cast iron or semisteel other than the 3 ASTM specifications listed above be used for primary stop valves.

(B) Street ells and screwed service tees.

(C) Valves of a design that will allow the valve stem to be removed without removal of complete valve bonnet or disassembly of the valve body.

(D) Plastic pipe, tubing, hose and fittings, without written permission from the Division.

(E) Valves with valve stem packing glands which cannot be repacked under pressure, unless there is another stop valve of acceptable type between them and the vessel. This does not apply to service valves.

(F) Aluminum tubing for exterior locations and threaded aluminum connections and adapters that are required to be connected or disconnected as part of the filling or transferring operation except for those connections and adapters that are specifically designed with special threads suitable for this service.

(G) Pipe nipples in lieu of couplings or flanges in tank connections.

(H) Copper alloy with copper content exceeding 70 percent.

(b) Compressed Natural Gas.

Hose shall not be used in lieu of manifolds, piping or tubing between dispensing tanks and cylinders and the connection for the loading and/or unloading hose connections, except that a section of metallic hose not to exceed 24 inches in length may be used in each pipeline to provide flexibility where necessary. Each section shall be so installed that it will be protected against mechanical damage and be readily visible for inspection. The manufacturer's identification shall be retained in each section.

(c) Liquefied Natural Gas.

(1) Flanged joints or threaded joints which have not been seal welded on liquid lines between the tank and the first shutoff valve are prohibited.

(2) All LNG piping over 2-inch pipe size shall be welded, flanged or silver brazed with a material having a melting point exceeding 1,000 degrees Fahrenheit. Compression type couplings and threaded joints shall not be used except that seal welded threaded joints may be used.

(3) Piping 2-inch or smaller may be threaded, welded or flanged except as prohibited in 536 (c) (1).

(4) Threaded nipples and pipe shall be at least Schedule 80.

(5) Plugs shall be solid or else they shall be bull plugs of at least Schedule 80 seamless pipe.

(6) For service temperatures of minus 20 degrees Fahrenheit or above, threaded piping and tubing with compression type couplings may be used except as prohibited in 536 (c) (2).

(7) Pipe supports for piping having a service temperature below minus 20 degrees Fahrenheit shall be designed to minimize heat transfer so that support steel embrittlement and piping restraints caused by ice formation will be prevented.

(8) Bellows type expansion joints in low temperature service shall be provided with external insulation that will prevent ice from forming on the bellows.

HISTORY

1. Amendment of subsections (a)(1) and (a)(5)(F) filed 3-29-74; effective thirtieth day thereafter (Register 74, No. 13).

### § 537. Piping Systems Valving and Labeling.

(a) General.

(1) All piping and tubing shall be tested after assembly and proved free from leaks at a pressure equal to the maximum working pressure of that portion of the system or its safety valve setting, whichever is greater, except for welded piping [see 536 (a) (3)].

(2) Where excess-flow valves are used, the closing flow shall be less than the flow rating of the piping system between the excess-flow valve and the equipment downstream of the excess-flow valve.

(3) When two or more vessels, other than motor fuel tanks or cylinders, are manifolded together or when branches or restrictions are incorporated into the piping system, additional excess-flow valves or equivalent shall be installed where the flow rating of the piping is less than the closing flow rating of the excess-flow valves in the vessels. The additional excess-flow valves or equivalent shall be located as close to the point of branching or restriction as possible.

NOTE: A quick-closing manually operated valve may be considered equivalent to an excess-flow valve at the point of pipe size reduction or other restriction providing:

(1) It is equipped with a means for closing the valve manually from a point remote from the delivery connection.

(2) The loading and/or unloading line in which it is located is secured to a bulkhead complying with Section 532 (a) (6).

(3) The quick-closing valve is in the pipeline on the tank side of the bulkhead.

(4) Bleed connections shall be provided in transfer systems to permit depressurizing the line before disconnecting. These bleed connections shall discharge at a safe place.

(5) Piping, compressors, pumps, valves, regulators, gaging and other vessel accessory equipment shall be protected against physical damage, including vehicular.

(b) Compressed Natural Gas.

(1) Except for safety relief valves and gaging connections all vessel connections, other than in motor fuel tanks or cylinders, larger than 1/4 inch pipe size shall have one of the following installed directly in each connection:

(A) A back-flow check valve to prevent flow from the tank.

(B) An excess-flow valve.

(2) A manually operated shut-off valve shall be installed as close to the vessel as practicable. Manually operated shut-off valves for DOT cylinders shall be provided in accordance with DOT regulations.

(3) Piping systems shall be protected against overpressure by safety relief devices. Relief devices installed to protect the piping system shall have sufficient capacity and shall be set to open at a pressure not exceeding 110 percent of the maximum allowable working pressure of the system or the pressure which produces a hoop stress of 75 percent of the specified minimum yield strength, whichever is lower.

(c) Liquefied Natural Gas.

(1) Except for safety relief valves and gaging connections all vessel connections, other than in motor fuel tanks, larger than 1/2-inch pipe size shall have one of the following installed directly in each connection (for the purpose of this Section tank connection location for double wall cryogenic vessels may be the point of penetration through the outer vessel or its jacketed extension):

(A) A back-flow check valve to prevent flow from the tank.

(B) A manually operated internal valve equipped with a means for closing the valve from a point remote from the delivery connection. The closing mechanism or its control shall be fitted with a fusible link having a melting point of 200 degrees Fahrenheit to 250 degrees Fahrenheit which will cause the valve to close automatically in case of fire.

(C) Either an internal valve which can be operated manually and will close on excess-flow conditions or one which is normally closed and is opened by pump discharge pressure. These valves shall be equipped with a means for closing from a point remote from the delivery connection and the closing mechanism shall be fitted with a fusible section as required in (B) above.

(D) An excess flow valve. In addition, there shall also be a quick closing automatic valve located as close to the tank as possible and which shall remain closed except during transfer. This valve shall be equipped with a means for closing automatically from a point remote from the delivery connection and shall be fitted with a fusible section having a melting point of 200 degrees Fahrenheit to 250 degrees Fahrenheit which will cause the valve to close in case of fire. Piping and valves shall be of austenitic stainless steel as listed in ANSI Code For Pressure Piping, B 31.3 1966 Edition, Table 302.3.1.A. Piping between the tank and the valve inlet shall be seamless and at least Schedule 40. All joints in the piping to and including the valve inlet shall be welded in accordance with 536 (a) (3).

(2) (A) Systems installed in accordance with (A) or (B) above shall have a manually operated shut-off valve located as close to the tank as practicable. Systems installed in accordance with (D) above shall have a manually operated shut-off valve located between the quick-closing automatic valve and the vessel.

(B) Systems with tank connections installed in accordance with (C) above shall have a manually operated shut-off valve located in the loading and/or unloading pipelines between the tank and the pump, meter or bulkhead whichever is nearest the tank.

(3) Wherever liquid can be trapped between two or more valves, a safety relief valve shall be installed to prevent excessive hydrostatic pressure. This safety relief valve shall start to discharge at not less than 125 percent nor more than 150 percent of the safe working pressure of the piping system between the two shut-off valves.

(4) All LNG tank connections having manually operated shut-off valves shall be labeled to indicate whether they communicate with the vapor or liquid space. At least one of the following methods shall be employed in labeling these connections:

(A) Tags of metal or other suitable material labeled "Liquid" or "Vapor." These tags shall be fastened securely to the tank, to the primary manual valve or to the piping system at the valve. The legibility of these tags shall be maintained.

(B) Complete color painting of all visible parts of the piping or its insulation.

(C) Color bands not less than 4 inches wide at each tank connection or primary manual valve. These bands shall be readily visible on the insulation. Where identification is provided by complete color painting or by color bands, a color code shall be posted where visible from the transfer operation.

HISTORY

1. Amendment of subsection (c)(4) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).

## § 538. Hose, Metallic Hose, Flexible Metal Hose and Tubing Specifications.

(a) Hose and metallic hose shall be of or lined with materials that are resistant to corrosion and to the actions of natural gas.

(b) Hose, metallic hose, flexible metal hose and tubing shall be suitable for the most severe pressure and temperature service conditions expected with a burst pressure of at least 4 times the maximum working pressure. Flexible metal hose or pipe with swivel joints shall be used for transfer operations where operating temperatures during transfer will be less than minus 20 degrees Fahrenheit.

(c) Connections for hose, metallic hose, flexible metal hose and tubing shall be designed with a burst pressure of at least 4 times the most severe pressure and temperature conditions expected.

(d) The components of the hose and metallic hose shall be tested after assembly and prior to use to at least 2 times the service pressure, and also tested to a pneumatic pressure of at least 600 psi under water. After the original installation, all hoses shall be examined visually at such intervals as are necessary to assure that they are safe for use. In no case shall such examination interval exceed one year. Hose shall be tested for leaks with soap suds or equivalent at least annually and any leakage shall be reason for rejection. This test shall be recorded and the record shall be available to the qualified inspector.

(e) All hose, metallic hose, flexible metal hose and tubing and their connections shall be maintained in a safe condition.

(f) While in transit, all hose and flexible metal hose and tubing to be used in the transfer operation, including their connections, shall be protected from wear or injury and shall be capped.

(g) Hose, metallic hose, flexible metal hose and tubing shall be distinctly marked either by the manufacturer's permanently attached tag or by distinct markings every 5 feet indicating the manufacturer's name or trademark, service and working pressure.

HISTORY

1. Repealer and new subsection (g) filed 8–6–76; effective thirtieth day thereafter (Register 76, No. 32).

## § 539. Pressure Gages.

Every bulk storage tank, dispensing tank, transportation tank and bulk delivery tank shall be provided with a suitable pressure gage. The pressure gage shall be installed in a special gage outlet installed permanently on the tank or tank system and having an opening not to exceed No. 54 drill size opening at the tank connection. Pressure gages for LNG vessels shall have their connection above the maximum permissible liquid level. The pressure gage shall have a dial graduated to read approximately double the operating pressure, but in no case less than 1.2 times the pressure at which the pressure relief valve is set to function.

## § 540. LNG Vaporizer Installation.

(a) Vaporizers in excess of 1–gallon capacity shall be provided with suitable automatic means to prevent liquid from passing into the vapor system. This is not applicable to vaporizers discharging back to the vessel only.

(b) Vaporizers in excess of 1–gallon capacity shall be provided with one or more safety relief valves suitable for use with natural gas and set to open at not less than the maximum working pressure and not more than 110 percent of the maximum working pressure of the vaporizer.

(c) The minimum relieving capacity of the safety relief valves shall be at least equal to the capacity marking on the vaporizer nameplate as required in Section 525 (c)(5). This marking shall be determined for exposure to external fire and shall be sufficient to prevent pressure in the vaporizer from exceeding 120 percent of the maximum working pressure. When determined by calculation, the applicable formula in Appendix A shall be used.

The safety relief valve discharge shall be led outside of the vaporizer building, if any, and be discharged at a safe place.

(d) No coil or other device carrying artificial heat for vaporization shall be located inside of any LNG vessel not constructed for vaporizing only.

(e) Vaporizers shall not be installed inside of buildings unless the building is specifically designed for housing LNG vaporizers; in which case the building shall be constructed of non–combustible material and be adequately ventilated at both the floor line and ceiling. Ventilation shall be designed to prevent gasses lighter than air from being trapped at ceiling level.

NOTE: Ventilation is considered adequate when no mixture of flammable gases is permitted in concentrations exceeding 1/5 of the lower flammability limit for such mixture.

(f) Surge tanks, containing vapor only at 20 psi or less, shall be located at least 10 feet from important buildings and property lines. Such tanks operating at pressures exceeding 20 psi shall be located with respect to important buildings and property lines in accordance with Order 531 (a).

## § 541. Safety Relief Devices.

(a) General.

(1) Unless covered elsewhere in these Orders, every natural gas tank shall be provided with one or more spring–loaded safety relief valves set to open as follows with relation to the maximum allowable working pressure:

| *Type of Vessel* | *Minimum Safety Relief Valve Setting* | *Maximum Safety Relief Valve Setting* |
|---|---|---|
| ASME Code Constructed Vessels with a factor of safety of 5 or more | 100% | 125% |
| ASME Code Constructed Vessels built with a factor of safety of less than 5 | 100% | 110% |
| DOT Cylinders— Safety Relief Devices | As approved by Bureau of Explosives | |

All safety relief valves required by this Order shall be ASME labeled except for safety relief devices on DOT cylinders and safety relief valves as required in 537 (c)(3), which may be ASME or Underwriters' Laboratories rated and stamped.

(2) Each safety relief valve shall be plainly marked by the manufacturer of the valve with the pressure in pounds per square inch at which the valve is set to start to discharge and the discharge capacity in cubic feet per minute (cfm) air.

(3) No shutoff valves shall be installed between the safety relief valves and the tank without written permission from the Division except that a shutoff valve may be used on multiple valve installations where the arrangement of the valves will provide full required flow through the safety relief valves at all times. The opening or connection between the tank and safety relief valve or valves shall have at least the combined areas of all connected safety relief valve inlets.

(4) Safety relief valves shall be so arranged that they will have an unobstructed full size discharge to a safe place, and shall be so arranged that escaping gas will not impinge on the vessel, valves or fittings.

(5) Except for safety valves that are integral with service valves, safety relief valves on tanks and cylinders shall be installed in a vertical position and shall be fitted with suitable raincaps.

(6) Safety relief valves for natural gas service shall not be fitted with lifting devices. The adjustment if external shall be provided with means for sealing the adjustment to prevent tampering by unauthorized persons. If at any time it is necessary to break such seal, the valve shall be removed

from service until it has been reset and sealed. Any adjustments necessary to natural gas safety relief valves shall be made by the manufacturer or other companies having competent personnel and adequate facilities for the repair, adjustment and testing of such valves. The organization making such adjustment shall attach a permanent tag with the setting, capacity and date. All safety relief devices shall be tested at least annually and maintained in proper operating condition.

(7) If pressure regulators are used, a safety relief device shall be provided on the low–pressure side of each final stage regulator and on the low–pressure side of all other regulators unless the piping and/or fittings from the low–pressure side of such regulators to the high–pressure side of the next stage regulation are suitable for full tank pressure.

(8) Safety relief valves for surge tanks containing vapor only shall have a relieving capacity of not less than the maximum input from the system, vaporizer or reducing valves.

(9) Fusible plugs and/or rupture discs are prohibited for primary relief devices except as permitted in (b) (3) below.

(10) On underground installations, the discharge from safety relief valves shall be vertically upward and shall be piped to a point at least 10 feet aboveground, and shall meet the requirements for the location of tanks as specified in Order 531 (a) (1), (2) and (3).

(b) Compressed Natural Gas.

(1) The minimum required rate of discharge of the safety relief valves for aboveground CNG tanks shall be at least equal to any input from the system, whether stored or being compressed.

(2) Safety relief valves located on stationary tanks of over 166,000 cubic feet capacity, shall be fitted with ferrous standpipes which will discharge at least 2 feet above the top of the tank, but not less than 10 feet above ground level. These standpipes shall not be threaded at the open end, and shall be fitted with suitable drain openings. Return bends and pipe fittings at the upper ends of safety relief valve discharge pipes are prohibited. Standpipes shall be adequately braced or otherwise supported if over 4 feet in length.

(3) Safety relief devices for DOT cylinders shall be provided in accordance with DOT regulations.

(4) Safety relief valves for underground CNG tanks shall have a relieving capacity of not less than that required for aboveground tanks.

(c) Liquefied Natural Gas.

(1) The minimum relieving capacity of the safety relief valves for LNG tanks shall be at least equal to the capacity marking on the vessel nameplate required in 523 (c) (4).

(2) Safety relief capacity shall be determined for exposure to external fire and shall be sufficient to prevent pressure in the tank from exceeding 120 percent of the allowable working pressure for tanks built with a factor of safety of less than 5 and 150 percent for tanks built with a factor of safety of 5 or more. For calculating, the applicable formula in Appendix A shall be used to determine minimum relieving capacity.

(3) Safety relief valves for underground LNG tanks shall have a relieving capacity at least equal to the relief valve capacity markings on the vessel nameplate. When the capacity is not based on exposure of the vessel to fire, such underground tanks shall not be uncovered until they are free of liquid.

(4) Unless otherwise provided for in these Orders, safety relief valves shall have direct communication with the vapor space of the vessel.

(5) Safety relief valves located on stationary tanks over 2,000 gallons capacity shall be fitted with ferrous or suitable copper alloy standpipes which will discharge at least 2 feet above the top of the tank but not less than 10 feet above ground level. These standpipes shall not be threaded at the open end, and shall be fitted with suitable raincaps and shall be provided with a drain opening at their lower end unless the safety relief valves discharging into the standpipes are fitted with suitable drain openings. Return bends and pipe fittings at the upper ends of safety relief valve discharge pipes shall be prohibited. Standpipes shall be adequately braced or otherwise supported if over 4 feet in length.

(6) The outer tank of LNG vessels shall be provided with one or more relief devices set to open at not more than the maximum design working pressure of the outer tank. The discharge area shall be not less than .00024 square inch per pound of water capacity of the inner tank.

### § 542. Warning Signs.

(a) All tanks and cylinders in excess of 60 gallons capacity, except transportation tanks and fuel tanks on motor vehicles, shall have the word "FLAMMABLE" painted or otherwise suitably applied on each side that is readily visible. The letters of this sign shall be standard type and shall have a height of at least 1/12 of the diameter of the tank, but need not be in excess of 1 1/2 inches for tanks of 575 gallons capacity or less, or 4 inches for tanks exceeding 575 gallons capacity.

Transportation tanks shall have warning signs as required by the Department of Highway Patrol.

(b) Warning signs with the words "NO SMOKING OR OPEN FLAMES PERMITTED WITHIN ____FEET" shall be painted or otherwise suitably applied in letters at least 1 1/2 inches high, in sharply contrasting colors on each stationary tank or on a sign posted adjacent to the tank. This sign shall also be posted adjacent to all loading and unloading terminals and vaporizers located more than 50 feet from the tank.

NOTE: The distance shall be that shown in the following table:

| *Volumetric Capacity of Tanks and Cylinders in U. S. Gallons* | *Minimum Distance From Open Flame* |
|---|---|
| 60 to 575 U. S. gallons inclusive | 10 feet |
| 576 to 2,000 U. S. gallons inclusive | 25 feet |
| Over 2,000 U. S. gallons | 50 feet |

(c) When 2 or more tanks are installed in battery, the requirements of Order 542 (a) and (b) will be considered as being complied with when the required warning signs are prominently displayed on all exposed sides of tanks.

### *§ 543. Storage, Transfer and/or Vaporization of Natural Gas Within Buildings for the Purpose of Filling Motor Fuel Tanks or for Operating Stationary Internal Combustion Engines.*

*(a) CNG may be stored and LNG may be stored or vaporized within a building or an enclosure providing that the structure is of non–combustible construction, that it is used for industrial purposes only and that the floor area does not exceed 500 square feet.*

*(b) The space shall be used exclusively for the vaporization of the CNG or LNG or for the storage of not more than a total of 41,500 standard cubic feet of CNG or 500 gallons of LNG. If vapors heavier than air can be present, the structure shall not be below ground level and the space below the floor shall either be of solid fill or else properly ventilated to the open air.*

*(c) In all cases ventilation must be provided at both floor and ceiling levels and shall be considered adequate when no mixture of flammable gases is permitted in concentrations exceeding 20 percent of the lower flammability limit for the mixture. The requirements of this paragraph may be met by either:*

*(1) A continuously operating mechanical ventilation system.*

*(2) A gravity ventilation system composed of a combination of wall vents at the floor level and roof ventilators, or*

*(3) A combination of the two.*

*(d) Pumps and compressors should be located outdoors in a freely ventilated area. If installed within a building, such building shall be open on at least one side or be of louvered construction on at least two sides unless other acceptable ventilation is provided and it shall also be equipped with adequate roof ventilators.*

*(e) All electrical wiring and electrical equipment shall be suitable for use in Class 1, Division 1 location if natural gas is transferred within a building or enclosure. All other electrical wiring and electrical equipment located within a building where there is no transfer shall be suitable for use in a Class 1, Division 2, hazardous location.*

*(f) All gas piping to the building shall be provided with shutoff valves located outside the building. (Title 24, T8-543)*

*History*

1. Amendment filed 4-1-77; effective thirtieth day thereafter (Register 77, No. 14).

### § 544. Installation of Fuel Tanks or Cylinders for Motor Vehicles and Industrial Trucks.

NOTE: This Section does not apply to those vehicles under the control of the Department of Highway Patrol, except subsections (p), (q), and (r).

(a) Motor fuel tanks or cylinders shall be located in a place and in a manner to minimize the possibility of physical damage.

(b) Motor fuel tanks or cylinders for passenger type vehicles may be located in the trunk compartment provided the trunk compartment is properly ventilated and the safety relief valve discharge is piped outside. When a motor fuel tank or cylinder is installed inside a trunk or other compartment, positive means shall be provided to prevent leakage of natural gas into the passenger or driver's compartment. Vehicle tanks or cylinders that have their connections or appurtenances in the end shall have as much space as possible for connecting the required flexible metal hose or tubing and for operating the manually operated shutoff valve.

(c) If radio transmitting or receiving equipment is located in the same compartment as the fuel tank or cylinder such transmitting or receiving equipment shall be enclosed in a vapor-tight compartment or otherwise protected from escaping fuel, unless the radio equipment is approved for use in a Class 1, Division 1, Group D location.

(d) For passenger-carrying or other commercial vehicles, motor fuel tanks or cylinders and their valves and appurtenances may be installed in a recess which is vapor-tight to the inside of the vehicle and accessible from and vented to the outside.

(e) Valves, fittings and appurtenances containing natural gas shall not be located in the passenger or driver compartment unless all such valves fittings and appurtenances are positively sealed off from and vented to a point outside the passenger or driver compartment.

(f) Each motor fuel tank shall be provided with a manually operated shutoff valve screwed directly into the tank connection. The manual shutoff valve shall be readily accessible or an electrically operated valve shall be installed in the line next to the manual valve. The manual shutoff valve shall be legibly labeled "Shutoff Valve." In installations of multiple cylinder manifolding, there shall also be a master shut-off valve either electrically or manually operated and located downstream from but as close as possible to the last cylinder in the series. In these cases there shall be a label indicating "Shut-off Valve" at the master valve and the individual tank valves need not be labeled.

(g) Motor fuel tanks or cylinders shall be installed in such a manner that the bottom of the vessel and/or any connection thereto shall not be lower than the lowest horizontal axle when the vehicle is fully loaded.

(h) Vents from control devices shall discharge outside the trunk compartment or other confined space.

(i) Motor fuel tanks or cylinders shall be secured in a manner to prevent jarring loose, slipping or rotating of the tanks. Such fastening shall be designed to withstand loadings in any direction equal to the filled weight of the tank with a factor of safety of at least 8. Motor fuel tanks or cylinders shall not be fastened directly to the gasoline fuel tank. Compensation shall be made for the added weight by proper design or redesign of the vehicle suspension system when the loaded weight of the vehicle exceeds the manufacturer's maximum specifications.

(j) Manifolded motor fuel tanks or cylinders shall be supported and held together as a unit by structurally adequate means. Manifolded branch lines shall be sufficiently flexible to prevent damage to the lines, valves and tanks due to vibration, expansion or contraction. Valves and appurtenances shall be protected from mechanical damage either by being located in recessed wells or by adequate guarding.

(k) All connecting parts of the fuel system shall be installed in such a manner as to prevent abrasion, vibration or fatigue and physical damage.

(l) Field welding, where necessary, shall be made only on saddle plates, brackets or other non-pressure parts that were provided and installed by the manufacturer of the tank or cylinder. There shall be no welding on the vessel shell or heads other than that by the manufacturer unless the welding is acceptable to the authorized inspector.

(m) The connection between the motor fuel tanks or cylinders and the reducing valves, vaporizer or other devices used to reduce the pressure to that needed for carburetion shall be of flexible metallic tubing, wire-braided hose or equivalent with a factor of safety of not less than 5 for the most severe pressure and temperature design conditions. There shall be as few connections and fittings as practicable.

(n) Automatic pressure reducing equipment shall be used for the purpose of reducing the pressure of natural gas to the carburetor, which shall not exceed 5 psi. Positive means shall be provided to prevent malfunction due to refrigeration effects. There shall be a device in the fuel supply system which will automatically stop the flow of fuel when the engine is not running.

(o) Each driver shall be trained in the safe use of this fuel system and be provided with a set of operating instructions. The driver's employer shall be responsible to see that this is done.

(p) While the natural gas motor fuel tank or cylinder is being filled, the vehicle parking or emergency brakes shall be set and the motor shut off. All transfer operations shall be supervised by an attendant familiar with the transfer operation. The attendant may be considered familiar with the transfer operation after he has been provided with a set of instructions and has performed the transfer operation at least through 3 full cycles under supervision. Where LNG motor fuel tanks or cylinders are being filled, the attendant shall remain at the controls necessary to stop the transfer operation.

(q) Fill connections for motor fuel tanks or cylinders shall have at least one back-flow check valve or device. Quick disconnect couplings may be used provided they are designed for the most severe pressure and temperature conditions with a factor of safety of at least 5 and provided they are leak-tight in the connected and disconnected shutoff conditions. These couplings shall not be used in lieu of any required manually operated shutoff valves.

*(r) When motor vehicles are to be parked within buildings, adequate provisions shall be made such as roof ventilation to prevent gases lighter than air from being trapped at ceiling level. No source of ignition, electrical or otherwise, shall be permitted at those levels. (Title 24, T8-544(r))*

*History*

1. Amendment filed 4-1-77; effective thirtieth day thereafter (Register 77, No. 14).

## Article 10. Safe Practices

### § 560. Safe Practices.

(a) No person shall do any of the following:

(1) Remove, displace, damage, destroy, or carry off any safety device, safeguard, notice, or warning for use in any employment or place of employment, or interfere in any way with their use by any other person (this is not intended to prohibit the removal for repair or maintenance of any safety device provided such device or a suitable replacement is reinstalled before the unit is replaced in service).

(2) Interfere with the use of any method or process adopted for the protection of any employee, including himself, in such employment or places of employment.

(3) Fail or neglect to do every other thing reasonably necessary to protect the life and safety of employees.

(b) The following Safety Orders from California Administrative Code, Title 8, are hereby made a part of these orders.

(1) General Industry Safety Order 3301: Use of Compressed Air or Gases. See Appendix B.

(2) General Industry Safety Order 3304: Miscellaneous Use of Compressed Cylinder Gas. See Appendix B.

(3) General Industry Safety Order 3312: Entering Combustion Chambers, Flues, Boilers or Unfired Steam Pressure Vessels. See Appendix B.

(4) General Industry Safety Order 3518: Air Compressors. See Appendix B.

(c) Compressed gases shall not be used to elevate or otherwise transfer any substance from or to a container unless the container(s) is/are designed to withstand the maximum possible pressure that may be applied with a factor of safety of at least 4.

Compressed gases shall not be used for pressure testing of any object until a safe pressure and procedure have been established.

Except where pressure tested in accordance with (d), elastic materials must not be gas tested at pressures above 67% of the minimum specified yield point at test temperature. Brittle materials must not be gas tested above 40% of the minimum specified ultimate strength without remote operation and missile shielding. "Brittle Material" is defined for this section as having a minimum specified elongation of 4% or less.

(d) Hydrostatic or Pneumatic Testing (subchapters 1 and 2) of Pressure Vessels, and included piping over 2" diameter.

(1) The rules of applicable Codes or Standards shall be used for hydrostatic, pneumatic or combination hydrostatic–pneumatic testing. Proof tests and tests to failure must also use procedures allowed by applicable codes or standards. If no applicable code or standard exists, the test procedure must be reviewed and accepted by the Division.

(2) All valves, fittings and flanges used for pressure testing equipment, for either new construction or repair, shall have a minimum pressure rating equal to the test pressure. Use of an applicable ANSI standard pressure–temperature table such as in ANSI B16.5, is acceptable to determine the pressure rating.

(3) Except as allowed in (4), all temporary closures shall be threaded, flanged with full bolting, or attached with full penetration welds; welded temporary closures must be so placed to preclude distortion or damage to the vessel or piping being tested.

Threaded connections shall conform to the following table:

MINIMUM NUMBER OF THREADS PER CONNECTION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| (a) Pressures up to and including 300 psi | | | | | | | |
| Size of pipe connection, in. ..... | 1 & 1 1/4 | 1 1/2 & 2 | 2 1/2 to 4 | 4 1/2 to 6 | 7 & 8 | 9 & 10 | 12 |
| Threads engaged ..... | 4 | 5 | 7 | 8 | 10 | 12 | 13 |
| Min. plate thickness required, in. .. | 0.348 | 0.435 | 0.875 | 1.0 | 1.25 | 1.5 | 1.625 |
| (b) Pressures above 300 psi | | | | | | | |
| Size of pipe connection, in. ..... | 1/2 & 3/4 | 1 to 1 1/2 | 2 | 2 1/2 to 3 | 4 to 6 | 10 | 12 |
| Threads engaged ..... | 6 | 7 | 8 | 8 | 10 | 13 | 14 |
| Min. plate thickness required, in. ... | 0.43 | 0.61 | 0.70 | 1.0 | 1.25 | 1.62 | 1.75 |

(4) The use of expansion plugs or serrated plugs without through stays is limited to 6" nominal pipe size and/or 150 psi; for use of such devices above these limits specific written test procedures must be developed by the employer to protect against injury in the event the plug blows out.

Such instructions may include applicable data and recommendations furnished by the plug manufacturer and must include the following as a minimum:

(A) Identification by function of the personnel responsible for the various procedures.

(B) The test plugs must be well maintained and inspected by the designated employee before use.

(C) Any opening to be plugged shall satisfy any limitation on straightness, roundness and diameter and shall be cleaned of dirt, mill scale or oil.

(D) The plug must be of the correct size and pressure rating, including any limitations on the test fluid or test temperature. It must be inserted for full length of engagement, in accordance with the plug manufacturer's instructions.

(E) The test piece must be so oriented to minimize probability of the plug striking personnel or equipment if the plug is ejected. All air must be vented from objects to be hydrostatically tested. Test plugs shall be barricaded or equipped with arresting devices when pneumatic pressure is used for testing.

(F) Provision shall be provided for safe egress. No one shall be allowed to stand in front of the test plug or in line of probable trajectory during test.

(G) No one shall be allowed to stand on top of the object being tested, or on a ladder to the test section until the test object is brought up to full test pressure, held at test pressure for at least ten minutes, and pressure is reduced to a predetermined safe level.

(H) Pressurization shall be stopped at intervals to check pressure gage (s) and position of test plug (s).

(I) The test pressure shall be reduced to zero before the plugs are loosened for removal.

(J) Damaged or expanded closure ends must be cut off.

(K) All repairs to test plugs shall follow the plug manufacturer's instructions.

(5) Pipe test machines are acceptable for use after they have been reviewed by the Division for safe operational procedures.

(6) Pressure during test must be controlled within 5% above the required test procedure. Protection against overpressure must be provided at 110% of the test pressure. A relief valve setting of 133% of the test pressure may be used, for elastic materials only, where calculations show that 133% of the test pressure will not exceed 90% of the specified minimum yield strength of the material. The discharge from the safety relief valve or rupture disc must be led full size to a safe place.

The requirement for a relief valve may be waived by a Qualified Pressure Vessel Safety Engineer or Certified Pressure Vessel Inspector if the only source of test pressure is a handpump.

(e) Railroad tank cars containing compressed gas may not be used for interrupted unloading into smaller containers, unless permitted by the Federal Department of Transportation. Provisions for such unloading shall conform to DOT regulations

See Petroleum Safety Orders, Sections 6879, 6880 and 6881 for requirements covering transfer operations at sidings inside petroleum refineries and distribution plants.

(1) An adequate unloading facility must be provided, and provisions must be made to support the transfer hoses. The transfer attendant must not be required to haul the transfer hoses up or down the tank car ladder.

(2) A bulkhead must be provided to prevent pullaway of the transfer hoses and/or to prevent imposing piping loads on the tank car valves. The bulkhead must be designed to withstand a horizontal pull of at least 2,000 pounds in any direction unless other adequate protection is provided. The unloading connections shall be firmly secured to the bulkhead. Excess flow valves, check valves or equivalent devices shall be provided where pipe or hose size is reduced.

The Qualified Transfer Attendant shall be instructed in all phases of the transfer operation. The instructions shall include a prohibition against overfilling any tank. Note: All valves in the transfer system must be *fully* open in order for an excess flow valve to function, so internal valves or check valves should be used whenever possible. The tank car excess flow valves are located in the internal piping beneath the dome.

NOTE: Bonding and grounding of the tankcar and transfer equipment may be required for compressed flammable gases by railroad leasing agreement or by the local fire official.

(3) Written notification shall be given the Division and the local fire official of each non–permanently equipped transfer site. In emergencies, verbal notice may be given followed by written confirmation. Each such site shall be located, with respect to the minimum distance tables as outlined in Section 501(c) for $NH_3$ or Sections 475(a) and (b) for Flammable Compressed Gas. Sites for transfer of other compressed gases must be at least 50 feet from railroad main track or important buildings. The working areas must be kept clear of debris and all transfer equipment must be protected from physical damage. Transfer shall be done only during daylight hours unless the transfer area is equipped with a lighting system and which provides at least 5 foot candles of illumination at all points of operations.

(4) Vehicle and tank car wheels must be blocked during transfer. Tank car brakes must be set. Tank cars must not be left connected to hoses and/or pipelines except during the unloading operation and while the qualified transfer attendant is present and in charge, unless the tank car valves are closed and locked, hoses are depressurized and/or a hydrostatic relief valve is installed between shutoff valves.

Valves on vehicles must be closed and locked except during transfer. Where vehicular container valves cannot be locked closed, the filling hose(s) must be disconnected when the qualified attendant is not present.

(5) Transport tank trucks and towed vehicles may load into the tank cars if they are also equipped with pullaway protection, in addition to meeting the requirements of paragraphs (1) through (4). A brake interlock system that is acceptable to the Division, and is connected to the truck tank unloading hose connection, is considered as an adequate pullaway safeguard.

Personal protective devices and safety equipment which are required and used for stationary storage facilities must be provided. Fire extinguishers must be provided for flammable compressed gases and anhydrous ammonia as required by the applicable safety order.

HISTORY

1. New subsection (e) filed 5–6–77; effective thirtieth day thereafter (Register 77, No. 19). For prior history, see Register 76, No. 51.

## Appendix A

### Minimum Capacity Requirement Of Relief Valves for Fire Exposure For Liquefied Natural Gas Tanks and Vaporizers

A1. The minimum total heat influx during a possible fire exposure of an insulated container shall be computed by the applicable formula:

NOTE: Equation (1) shall be used for vaporizers with external insulation and Equation (2) for uninsulated vaporizers. The value of A is obtained by adding the area of the shell in contact with LN–Gas and the area of heat exchange surface in contact with LN–Gas.

(1) $H = 1560C_1A^{0.82} + Hn$

where:

H = Total heat influx, Btu per hour.

$C_1$ = Conductance of the insulation, Btu/sq. ft.–hr.–deg. F. (The value of C increases with temperature and a mean value for the range from –260 F to +1660 F should be used.)

A = Total exposed wetted surface area in sq. ft.

Hn = Total normal heat gain to the stored liquid without fire exposures and at maximum ambient temperatures, Btu per hour.

A2. If the insulation system, including any jacketing material, is such that it will disappear, deteriorate or dislodge in an exposure fire, a higher heat gain will occur. This requires special consideration depending upon the extent of loss of the insulating properties. If only a part of the insulation is lost, the heat gain may be estimated by the formula:

(2) $H = (34{,}500 - 360C_2)A^{0.82} + Hn$

In this case, the value of $C_2$ should be the mean value for the range from –260° F to +100° F.

A3. The required relief valve capacity shall be computed by the formula

(3) $Qa = 3.09(H/L)\sqrt{(T/M)}$

where:

Qa = Required flow capacity of air, cu. ft. per hour at 60 F and 14.7 psia.

H = Total heat influx, Btu per hour from the formula (1) or (2).

L = Latent heat of vaporization of the stored liquid, Btu per lb. (219 may be used for LN–Gas).

T = Absolute temperature of the gas at the relief valve inlet, deg. R.

M = Molecular weight of the gas (16.0 may be used for LNG).

HISTORY

1. Relocation of Appendix A filed 12–14–76; effective thirtieth day thereafter (Register 76, No. 51).

## Appendix B

3301.[1] Use of Compressed Air or Gases.

(a) Compressed air and other compressed gases in excess of 10 pounds per square inch gauge shall not be used to blow dirt, chips, or dust from clothing while it is being worn.

(b) Compressed air or gases shall not be used to empty containers of liquids where the pressure can exceed the safe working pressure of the container.

(c) The use of compressed air shall be so controlled, and proper personal protective equipment or safeguards utilized, as to protect against the possibility of eye or body injury to the operator or other workers.

(d) Abrasive blast cleaning nozzles shall be equipped with an operating valve which must be held open manually. A support shall be provided on which the nozzle may be mounted when it is not in use.

(e) Compressed gases shall not be used to elevate or otherwise transfer any hazardous substance from one container to another unless the containers are designed to withstand, with a factor of safety of at least four, the maximum possible pressure that may be applied.

NOTE: For further guidance in the utilization of compressed gases in cylinders see Group 10; for portable tanks, rail tank cars, or motor vehicle cargo tanks, see Compressed Gas Association Pamphlet P–1–1965.

[1] Reprint General Industry Safety Order, Section 3301, Use of Compressed Air or Gases, from the California Administrative Code, Title 8, Subchapter 7 (Register 75, No. 29).

3304.[2] Miscellaneous Use of Compressed Cylinder Gas.

(a) Employers shall not permit the use of compressed cylinder gas for testing pressure vessels unless there is installed in the compressed gas supply line or on the vessel being tested a pressure relief device set to function at a pressure not to exceed the safe working pressure of the vessel.

(b) Compressed gas shall never be used from a cylinder or cylinder manifold where pressures dangerous to employees may develop unless an accepted pressure regulating device is installed on the cylinder valve or manifold. The term "accepted" here means that the pressure regulating device is listed by Underwriters' Laboratories or some other recognized authority of equivalent standing.

Note: Cylinder as used in this order means an Interstate Commerce Commission compressed gas cylinder.

[2] Reprint General Industry Safety Order, Section 3304, Miscellaneous Use of Compressed Cylinder Gas, from the California Administrative Code, Title 8, Subchapter 7 (Register 72, No. 23).

3312.[3] Entering Combustion Chambers, Flues, Boilers or Unfired Steam Pressure Vessels.

(a) Before employees are allowed to enter, through a manhole, the shell or drum of a steam boiler or an unfired steam pressure vessel for maintenance or repair, where such a boiler or pressure vessel is one of a battery of two or more boilers or vessels or is connected to another source of steam, the valves connecting to the steam header or other source of steam shall be closed and effectively blinded or two valves shall be installed with a bleeder between them and the valves shall be closed and bleeder open. Blow down valves and other valves on lines through which harmful material might accidentally flow back to the boiler or vessel shall be either sealed or closed and locked and the key retained by the em-

ployee or his supervisor while the employee is in the boiler or vessel. When lines are effectively blinded the valves need not be locked or sealed.

(b) Employees shall not enter or be required to enter the fire boxes, flues or combustion chambers of fired apparatus until:

(1) The pilot light, fuel and steam lines to burners entering the fire box or combustion chamber have been blinded, disconnected or effectively closed by the use of two block valves with an open bleeder between them.

(2) All probability of ignition of any solid combustibles in the fire box or combustion chamber has been removed.

[3] Reprint of General Industry Safety Order, Section 3312, Entering Combustion Chambers, Flues, Boilers or Unfired Steam Pressure Vessels, from the California Administrative Code, Title 8, Subchapter 7 (Register 72, No. 23).

3518.[4] Air Compressors.

(a) Air compressor discharge lines having a block valve between the air receiver and compressor shall have a pressure relieving safety device installed in the line between the compressor and block valve. The pressure relieving safety device shall be set to open at a pressure not to exceed the rated working pressure of the cylinder. The relieving capacity of the pressure relieving safety device shall be such as to prevent a rise of pressure in the compressor cylinder of more than 10 percent above its maximum allowable working pressure, and the discharge shall be to a safe place.

The installation of this pressure relieving safety device is not to be considered as providing the required safety relief valve for the protection of the air receiver.

(b) Air compressor intake lines shall not be located in atmospheres containing explosive concentrations of flammable gases or vapors.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. New Appendix B (Sections 3301, 3304, 3312, and 3518) filed 12–14–76; effective thirtieth day thereafter (Register 76, No. 51).

[4] Reprint of General Industry Safety Order, Section 3518, Air Compressors, from the California Administrative Code, Title 8, Subchapter 7 (Register 72, No. 23).

## Appendix C

### Acceptance Tests for Plastic Piping

The following are tests that shall be passed for acceptance of plastic piping for the conveyance of compressed air:

1. Test for impact resistance at 0° C: (32° F)

Objective: To determine if the material will withstand the energy of impact without fracturing through the complete wall thickness.

Form of test specimen: Each specimen shall be a section of pipe, of a length equal to twice the nominal size or 150 mm (6″), whichever is greater, subject to a maximum length of 300 mm (12″). The ends of the specimen shall be cut clean and equal to the axis of the pipe.

For "round–the–clock" testing, each specimen shall be marked with the number of longitudinal lines shown in Table 1.

NOTE: For pipe sizes 50 mm (2″) and over, specimens are subjected to impact equally spaced around the pipe; this procedure is known as "round–the–clock" testing.

Apparatus: A falling weight machine (an example of which is shown in Figure 1) shall be used and shall consist essentially of the following:

a. A main frame which can be rigidly fixed in a true vertical position.

b. Guide rails, carried from the inside of the main frame, on side bearings which can be adjusted to keep them parallel and vertical.

c. A weighted striker that can fall freely within the guide rails and that is equipped with a hardened hemispherical striking surface 25 mm (1″) in diameter. The striking surface shall be free from flats and/or other imperfections.

d. An appropriate set of weights which can be firmly attached to the striker to enable the combined weight to be adjusted to the values shown in Table 2.

Procedure: Adjust the total energy of the striker to the value appropriate to the pipe diameter being tested as shown in Table 2.

Condition each specimen in a water or ethylene glycol bath for at least one hour prior to the test at a temperature of 0° C (32° F) + 1°. Test individual specimens within 10 seconds of removal from the bath. allow the striker to fall freely onto the pipe specimen, which is centrally mounted on the vee block support.

Specimens from 10 mm (3/8″) to 38 mm (1–1/2″) (inclusive) nominal size shall be subjected to a single strike only.

For pipe size 50 mm (2″) and above. Place the pipe on the vee block, so that one of the marked lines is uppermost. Then allow the weight striker to fall freely on the marked line on the pipe as described above. If the specimen does not fail as a result of cracking or splitting through the pipe wall, rotate the specimen until the next marked line is uppermost in the vee block, and cause a second blow to be made by the striker. Repeat the process until all the marked lines have been tested, or until a failure is recorded.

If the required sequence of impacts has not been completed within 10 seconds, interrupt the procedure and immediately recondition the specimen at a temperature of 0° C (32° F) + 1° for at least 10 minutes.

Fracturing or cracking through the complete wall thickness of the test specimen shall be a failure.

The following tests (Nos. 2 & 3) are intended to simulate a potential destructive impact. Splitting through the pipe wall or puncture is acceptable for passing results, if:

(a) No separation of one part of piping length from its mating part occurs.

(b) No separation of any material fragment from the body of the piping occurs.

2. Test for impact resistance at design pressure at 0° C (32° F) with blunt striker. Testing procedures and apparatus shall be the same as Test No. 1, except:

(a) Pressurize and maintain pipe sample at design pressure and cool to 0° C (32° F) as in Test No. 1.

(b) Energy of the striker to be twice the total energy of Table 2.

(c) Only one drop required.

3. Test for impact resistance at design pressure at 0° C (32° F) with sharp striker. Same as Test No. 2 in all cases, except with a chisel edged sharp striker (Figure 2).

4. The plastic piping systems shall be capable of sustaining without failure at least 600 psi when tested to the Standard Test Method for Short–Time Hydraulic Failure Pressure of Plastic Pipe, Tubing, and Fittings, using ASTM Designation No. D1599–86 (1986) which is herein incorporated by reference. This test shall be performed on each batch of pipe and fittings.

5. The plastic piping system shall be capable of sustaining without failure at least 460 psi when tested to the Standard Test Method for Time–to–Failure of Plastic Pipe Under Constant Internal Pressure using ASTM Designation No. D1598–86 (1986), which is herein incorporated by reference, for at least 1,000 hours. This test shall be performed anytime there is a change in:

(a) material composition, compound or processing technique;

(b) design or size of joint or fitting;

(c) but, in any case not less than every 12 months.

Table 1.

Number of Lines For "Round–the–Clock" Testing

| *Normal Size mm (inches)* | *Number of Equidistant Lines to be Drawn* |
|---|---|
| 50 mm (2″) | 3 |
| 63 mm (2–1/2″) | 4 |
| 75 mm (3″) | 4 |
| 100 mm (4″) | 6 |

Table 2.

Energy of Striker

| *Normal Size of Pipe mm (inches* | *Total Energy of Striker ft. lbs.* |
|---|---|
| 10 mm (3/8″) | 22 |
| 12 mm (1/2″) | 33 |
| 19 mm (3/4″) | 43 |
| 25 mm (1″) | 54 |
| 38 mm (1–1/2″) | 65 |
| 50 mm (2″) | 76 |
| 63 mm (2–1/2″) | 98 |
| 75 mm (3″) | 98 |
| 100 mm (4″) | 110 |

(c) Whenever an owner or user of any apparatus or equipment fails to pay the fees required under this section within 60 days after notification, said owner or user shall pay, in addition to the fees required under this section, a penalty fee equal to 100 percent of such fee. For the purpose of this section, the date of the invoice shall be considered the date of notification.

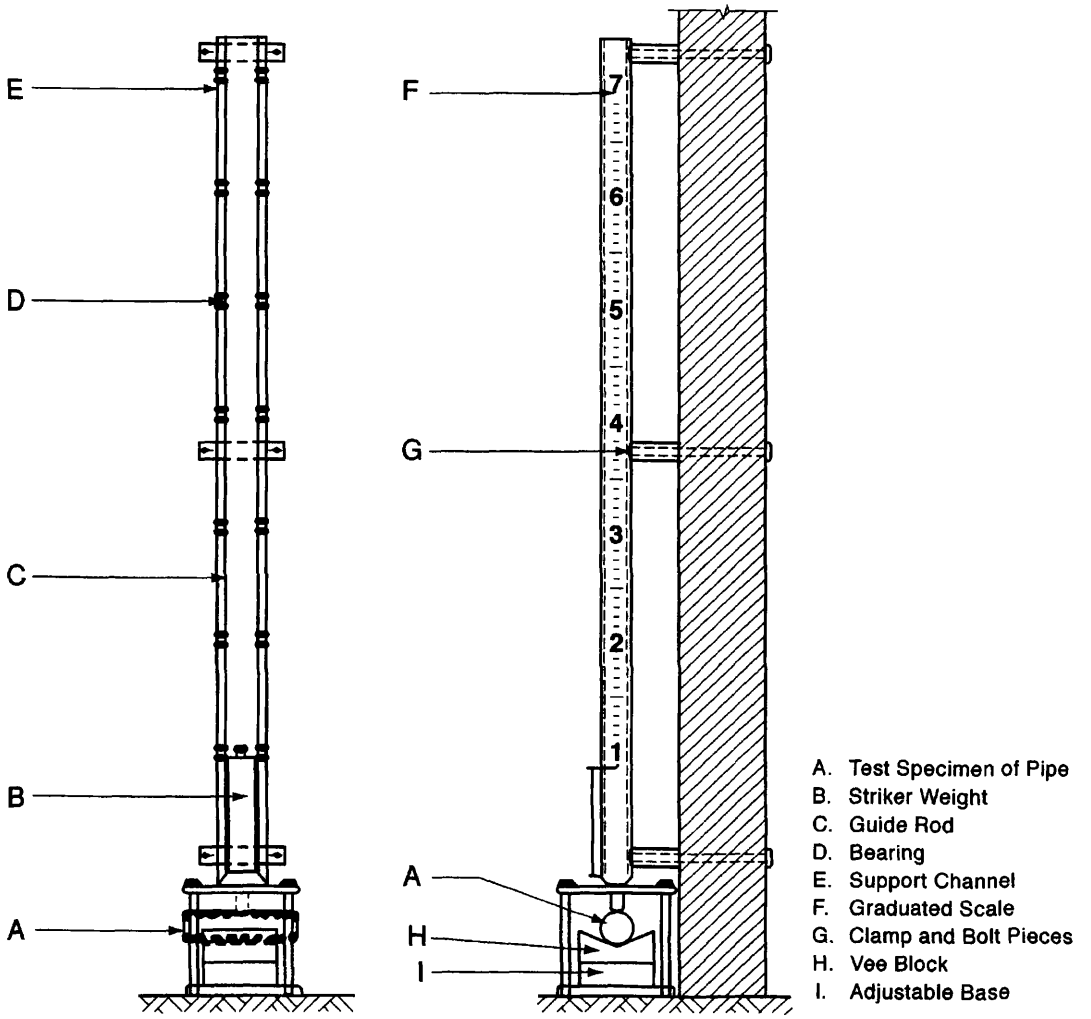



**Figure 1 - Suitable Impact Testing Machine**

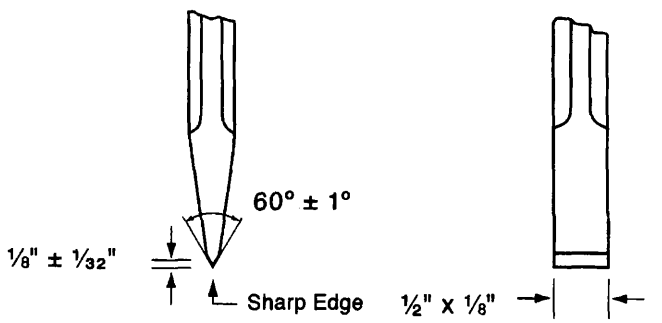



**Figure 2 - Chisel Edged Sharp Striker**

HISTORY

1. New Appendix C filed 3–28–78; effective thirtieth day thereafter (Register 78, No. 13).
2. Repealer and new Appendix C filed 4–8–92; operative 5–8–92 (Register 92, No. 18).
3. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

## Appendix D

# FORM R-1 REPORT OF WELDED REPAIR

in accordance with provisions of the National Board Inspection Code

1. Work performed by _____ (name of repair organization) _____ (Form R No.)

_____ (address) _____ (P.O. No. Job No. etc.)

2. Owner _____ (name)

_____ (address)

3. Location of installation _____ (name)

_____ (address)

4. Unit identification _____ (boiler, pressure vessel) Name of original manufacturer _____

5. Identifying nos.: _____ (mfg serial no.) _____ (National Board No.) _____ (jurisdiction no.) _____ (other) _____ (year built)

6. NBIC Edition/Addenda _____ (edition) _____ (addenda)

Original Code of Construction for Item _____ (name/section/division) _____ (edition/addenda)

Construction Code Used for Repair Performed: _____ (name/section/division) _____ (edition/addenda)

7. Description of work: _____ (use supplemental sheet, Form R-4, if necessary)

_____ Pressure Test, if applied _____ psi MAWP _____ psi

8. Replacement Parts: Attached are Manufacturer's Partial Data Reports or Form R-3s properly completed for the following items of this report:

_____ (name of part, item number, data report type, mfg's. name and identifying stamp)

9. Remarks: _____

### CERTIFICATE OF COMPLIANCE

I, _____, certify that to the best of my knowledge and belief the statements in this report are correct and that all material, construction, and workmanship on this Repair conforms to the National Board Inspection Code. National Board "R" Certificate of Authorization No. _____ expires on _____, _____

Date _____, _____ _____ (name of repair organization) Signed _____ (authorized representative)

### CERTIFICATE OF INSPECTION

I, _____, holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction of _____ and employed by _____ of _____ have inspected the work described in this report on _____, _____ and state that to the best of my knowledge and belief this work complies with the applicable requirements of the National Board Inspection Code.

By signing this certificate, neither the undersigned nor my employer makes any warranty, expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection.

Date _____, _____ Signed _____ (inspector) Commissions _____ (National Board (incl endorsements), and jurisdiction, and no.)

# FORM R-2 REPORT OF ALTERATION

in accordance with provisions of the National Board Inspection Code

1. Work performed by _____ (name of alteration organization) _____ (Form R No.)

_____ (address) _____ (P.O. No. Job No. etc.)

2. Owner _____ (name)

_____ (address)

3. Location of installation _____ (name)

_____ (address)

4. Unit identification _____ (boiler, pressure vessel) Name of original manufacturer _____

5. Identifying nos.: _____ (mfg serial no.) _____ (National Board No.) _____ (jurisdiction no.) _____ (other) _____ (year built)

6. NBIC Edition/Addenda _____ (edition) _____ (addenda)

Original Code of Construction for Item: _____ (name/section/division) _____ (edition/addenda)

Construction Code Used for Alteration Performed: _____ (name/section/division) _____ (edition/addenda)

7. Description of work: _____ (use supplemental sheet, Form R-4, if necessary)

Pressure Test, if applied _____ psi MAWP _____ psi

8. Replacement Parts: Attached are Manufacturer's Partial Data Reports or Form R-3s properly completed for the following items of this report:

(name of part, item number, data report type, mfg's. name and identifying stamp)

9. Remarks: _____

Form R-2 (back)

_____
(Form R No.)

DESIGN CERTIFICATION

I, _____ , certify that to the best of my knowledge and belief the statements in this report are correct and that the Design Change described in this report conforms to the National Board Inspection Code.
National Board "R" Certificate of Authorization No. _____ expires on _____ , _____

Date _____ , _____ _____ Signed _____
(name of design organization) (authorized representative)

CERTIFICATE OF DESIGN CHANGE REVIEW

I, _____ , holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction o _____ and employed by _____ of _____ have reviewed the design change as described in this report and state that to the best of my knowledge and belief such change complies with the applicable requirements of the National Board Inspection Code.
By signing this certificate, neither the undersigned nor my employer makes any warranty expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection.

Date _____ , _____ Signed _____ Commissions _____
(inspector) (National Board (incl. endorsements), and jurisdiction, and no.)

CONSTRUCTION CERTIFICATION

I, _____ , certify that to the best of my knowledge and belief the statements in this report are correct and that all material, construction, and workmanship on this Alteration conforms to the National Board Inspection Code.
National Board "R" Certificate of Authorization No. _____ expires on _____ , _____

Date _____ , _____ _____ Signed _____
(name of alteration organization) (authorized representative)

CERTIFICATE OF INSPECTION

I, _____ , holding a valid Commission issued by The National Board of Boiler and Pressure Vessel Inspectors and certificate of competency issued by the jurisdiction o _____ and employed by _____ of _____ have inspected the work described in this report on _____ , _____ and state that to the best of my knowledge and belief this work complies with the applicable requirements of the National Board Inspection Code.
By signing this certificate, neither the undersigned nor my employer makes any warranty expressed or implied, concerning the work described in this report. Furthermore, neither the undersigned nor my employer shall be liable in any manner for any personal injury, property damage or loss of any kind arising from or connected with this inspection.

Date _____ , _____ Signed _____ Commissions _____
(inspector) (National Board (incl. endorsements), and jurisdiction, and no.)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix D filed 1–30–2002; operative 3–1–2002 (Register 2002, No. 5).

* * *

*Barclays Official*

# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

## Chapter 4. Division of Industrial Safety

### Subchapter 2. Boiler and Fired Pressure Vessel Safety Orders

Vol. 8

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# Subchapter 2. Boiler and Fired Pressure Vessel Safety Orders

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# Subchapter 2. Boiler and Fired Pressure Vessel Safety Orders

(Originally Printed 4–20–45 As Boiler Safety Orders
Repealer and New Subchapter 2 Filed 8–18–55)

## Article 1. Scope of These Orders

### § 750. Application of Boiler and Fired Pressure Vessel Safety Orders.

(a) These orders establish minimum standards for:

(1) The design, construction, installation, inspection, operation, and repair of all power boilers and nuclear boilers in California not specifically exempted from these Orders.

(2) The design, construction, installation, operation, and repair of all low–pressure boilers and high–temperature water boilers in California not specifically exempted from these Orders.

(3) The design and construction of fired pressure vessels in California not specifically exempted from these orders.

(b) After the date on which these orders become effective, all installations and equipment shall conform to these orders.

EXCEPTION: Existing installations and equipment which were in compliance with safety orders, or variances therefrom, in effect prior to the effective date of these safety orders, unless the hazard presented by the installation or equipment is, in the judgment of the Chief of the Division, of such severity as to warrant control by the application of the applicable sections of these orders.

NOTE: Unless otherwise designated in this subchapter, the phrase "Division" refers to the current Division of Occupational Safety and Health or any of its predecessors including the former Division of Industrial Safety or the Division of Occupational Safety and Health Administration. Reference to the former Division of Industrial Safety or Division of Occupational Safety and Health Administration in these orders is meant to refer to their successor, the Division of Occupational Safety and Health, or any subsequent successor agency.

NOTE: Authority cited: Section 6307, Labor Code. Additional authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 6302(d), Labor Code.

HISTORY

1. Repealer and new subsection (b) filed 8–12–76; effective thirtieth day thereafter (Register 76, No. 33). For prior history, see Register 66, No. 38.
2. Amendment of subsection (b) filed 7–6–79 as procedural and organizational; effective upon filing (Register 79, No. 27).

### § 751. Boilers and Fired Pressure Vessels Not Subject to These Orders.

These orders are not applicable to the following:

(a) Boilers and fired pressure vessels under the jurisdiction or inspection of the United States Government.

(b) Boilers and fired pressure vessels used in household service.

(c) Automobile boilers and boilers used exclusively to operate highway vehicles.

### § 752. Variances.

(a) Any employer may apply to the Division for a temporary order granting a variance from an occupational safety and health standard. Such temporary order shall be granted only if the employer files an application which meets the requirements of Sections 6450 through 6457, inclusive, of the California Labor Code.

(b) Any employer may apply to the Occupational Safety and Health Standards Board for a permanent variance from an occupational safety and health standard, order, or portion thereof upon a showing of an alternative method, program, practice, means, device or process which will provide equal or superior safety for employees. Such application shall conform to the requirements of the California Administrative Code, Title 8, Chapter 3.5.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 8–12–76; effective thirtieth day thereafter (Register 76, No. 33).

## Article 2. Definitions

### § 753. Definitions.

Age: Period of time since date of manufacture or nearest estimate if date of manufacture is unknown.

ANSI Standards: Standards approved as American National Standards by the American National Standards Institute, Inc.

Appurtenance A device installed on and used in the normal operation of the boiler. This includes the piping between the boiler and device, but does not include piping beyond that point unless specifically required elsewhere in these Orders.

ASME: The American Society of Mechanical Engineers.

Automatic Safety Shutdown Devices: Safety controls (other than operating controls) which monitor certain essential operating conditions of a fired boiler and which will shut down the boiler in the proper sequence when any of the essential conditions vary from set limits and require the services of the attendant to place the boiler back in operation.

Automatically Controlled Boiler: A boiler equipped with devices to maintain the burner firing conditions, the pressure and/or temperature, and the water level or water content within the predetermined limits without manual manipulation.

Boiler: A fired or unfired pressure vessel used to generate steam pressure by the application of heat. (This definition is intended to include "steam generators" and "forced-circulation boilers" but excludes "unfired evaporators.") [Note definition of: Code Boiler, High Temperature Water boiler, Low Pressure Boiler, Miniature Boiler, Nuclear Boiler, Power Boiler, Secondhand Boiler].

Certificate of Competency: Certification issued by the Division to persons who have satisfactorily passed the written boiler inspector's examination prescribed by the Division.

Certified Inspector: a person who is qualified to make inspections or examinations of boilers or tanks according to the rules under which the vessel is constructed, who has an unrevoked certificate of competency issued pursuant to this part, and who is employed by any one of the following:

A county.

A city

An insurer.

An employer, for the purpose of inspecting only tanks and boilers under his jurisdiction.

Code: The applicable sections of the ASME Boiler and Pressure Vessel Code and of the ANSI Standards.

Power Boilers, Section I, 1977 edition, (except PG-39 and PW-35 for which the 1974 edition will be used).

Material Specification, Section II, 1977 edition.

Nuclear Power Plant Components, Section III, 1977 edition, Division 1 and 2 (except NB/NC/ND-3612(a)(3), for which the 1974 edition will be used).

Heating Boilers, Section IV, 1977 edition.

Pressure Vessels, Section VIII, 1977 edition.

Welding and Brazing Qualifications, Section IX, 1977 edition.

Rules for In service Inspection of Nuclear Power Plant Components, Section XI, 1977 edition.

Power Piping, ANSI B 31, 1, 1977 edition (except nonmetallic pipe such as plastic is not acceptable unless permitted by specific safety orders).

Code addenda shall become effective six months after the date of issuance unless exception to specific parts thereof are made in the interim by the Division.

Code Boiler: a boiler constructed, inspected, and stamped as required by the code.

Division: Division of Industrial Safety.

Evaporator: An apparatus, usually closed, for driving off superfluous liquid, as in concentration plants for sugar and syrup, in fruit drying, etc., or for evaporating liquid for subsequent condensation to purify it, as from salts held in solution.

Existing Installations: Boilers installed in California prior to the adoption of these orders and in compliance with the safety orders of the Division in effect at the time of installation.

External Inspection: An inspection of all visible external surfaces and appurtenance of an installed boiler or fired pressure vessel. Where practicable this inspection shall be made with the boiler in operation to permit the inspector to witness the operation of the controls.

Field Inspection: An inspection of an installed boiler or fired pressure vessel.

Fired Pressure Vessel: A metallic vessel other than a boiler in which vapor pressure is generated in excess of 15 psi by direct firing with a solid, liquid, or gaseous fuel or by electric heating elements. (This does not apply to a coil or tubular section in which a fluid or other product is being continuously circulated by means of a pump or other mechanical device, provided the pipes or tubes do not exceed 6-inch size.)

Full Safety Pilot Control: A control that will shut off the fuel to the main burner and to the pilot burner and require manual resetting if:

The pilot burner flame should be extinguished, or

In the case of spark ignition, the main burner fails to light after 1 recycle of operation of the ignition mechanism.

High Temperature Water Boiler: A fired or unfired pressure vessel used to heat water to temperatures above 212° F. At pressure exceeding 160 psi or to temperatures exceeding 250° F regardless of pressure.

Internal Inspection: Inspection of all accessible internal and external surfaces of a boiler or fired pressure vessel and its appurtenances.

Low-pressure Boiler: A boiler which does not:

Operate at steam pressure or with steam safety valve settings exceeding 15 psi (low-pressure steam boiler), or

Operate at water pressure exceeding 160 psi or water temperatures exceeding 250° F (hot water heating boiler).

This definition is not intended to include domestic type water heaters provided all of the following are complied with:

The heater does not have more than 120-gallon water capacity.

The heater is used only for heating service water.

The operating control on all automatically controlled heaters is installed by the manufacturer and is of a type that cannot be regulated to increase the water temperature at the top of the heater to more than 200° F.

A non-adjustable control is installed on all automatically controlled heaters by the manufacturer and set to shut off the heat input when the temperature at the top of the heater is 210° F or less. This control and the necessary fuel valve, switch, etc., shall be separate from the operating mechanisms required in (C) above.

Automatically controlled gas or oil fired heaters shall have a safety pilot mechanism installed by the manufacturer and so arranged that fuel will be shut off to both the main burner and pilot burner in case of failure of the pilot burner flame or of the spark igniter.

The heater is approved by the American Gas Association or other testing laboratory acceptable to the American National Standards Institute.

The heater is protected against over-pressure than the maximum allowable working pressure of the heater and having a relieving capacity in BTU/hr at least equal to the burner output.

Coil-type swimming pool heaters at places of employment rated at or below 400,000 BTU/hr input need not be considered boilers provided all of the following conditions are complied with:

They are used to heat pool water to a maximum temperature of 140° F, with a maximum pressure stamping of 150 psi.

The inside diameter of the tubes shall not exceed 1/8" .

The water volume within the casing does not exceed 6 gallons.

Pool heaters with 200,000 BTU/hr input and less need not be ASME Code, but shall be built to good engineering practice, and have a minimum factor of safety of 4.

They shall have an ASME Code safety valve rated at the full BTU output, and set at or below the stamped maximum allowable working pressure of the heater.

The maximum voltage of the control circuit shall be 120 volts.

The burner shall have a safety pilot mechanism installed by the manufacturer that will shut off the fuel to both the main burner and pilot burner in case of failure of the pilot burner or of the spark ignitor. The maximum time until the fuel valve is fully closed shall be 90 seconds for burners not exceeding 400,000 BTU/hr input.

There shall be a flow switch or low water pressure switch installed by the manufacturer within the heater casing to monitor flow through the coil.

There shall be a high temperature limit switch set below the boiling point at atmospheric pressure. This is in addition to the operating temperature control, set at 140° F.

There shall be two main burner fuel valves piped in series, or a single fuel valve having two seats.

Coil-type steam vapor cleaners need not be considered as boilers provided all of the following conditions are complied with:

The larges nominal pipe or tubing size is 3/4," and has no drums or headers attached. They shall be built to good engineering practice with a factor of safety of at least 4.

The nominal water containing capacity does not exceed 6 gallons.

A non-adjustable high limit temperature control shall be set to operate at or below 350°F.

Steam is not generated within the coil.

A safety valve set at or below the stamped maximum allowable working pressure, with relief capacity at least equal to the BTU output of the burner, shall be installed near the outlet.

The burner shall have a safety pilot mechanism installed by the manufacturer that will shut off the fuel to both the main burner and pilot burner in case of failure of the pilot burner or of the spark ignitor. The maximum time until the fuel valve is fully closed shall be 90 seconds for burners not exceeding 400,000 BTU/hr input.

Miniature Boiler: A boiler which does not exceed any of the following limits:

16 inches inside diameter of shell.

5 cubic feet gross volume, exclusive of casing and insulation. (This volume includes the total volume of the steam and water containing parts of the boiler plus the volume of the combustion space and gas passages up to the point of attachment of the smokestack or chimney breeching.)

20 square feet water heating surface.

100 psi maximum allowable working pressures.

National Board: The National Board of Boiler and Pressure Vessel Inspectors.

New Installations: Boilers and fired pressure vessels installed or reinstalled after the effective date of these Orders.

Nuclear Boiler: A device consisting of a vessel or system of vessels in which nuclear fuel is present and a nuclear chain reaction may take place or in which the reactor coolant is circulated for the purpose of heating a fluid for generating useful energy. Such nuclear boiler shall include the interconnecting piping up to and including the required valve or valves needed to isolate the vessel or system of vessels.

Oil Field Recovery Heater: A forced-circulation, once-through, water tube steam generator, used only in oil field thermal recovery operations, having no fired pressure parts larger than 4-inch pipe size and no other pressure part larger than 6-inch pipe size.

Power Boiler: Steam boiler operated at pressure exceeding 15 psi.

Proved Pilot: a device that will not permit the fuel valve to the main burner to open until a proper source of ignition is established to light the main burner.

Psi: Pounds per square inch gage.

Qualified Inspector: Either a certified inspector or qualified safety engineer.

Qualified Safety Engineer: A person who is qualified to make inspections or examination of boilers or tanks according to the rules under which the vessel is constructed and who holds a valid certificate of competency issued by the Division.

Relief Valve: An automatic pressure relieving device actuated by the static pressure upstream of such device which opens further with the increase in pressure over the opening pressure. It is used primarily for liquid service.

Resale Inspection: The inspection of any used boiler to determine its maximum allowable working pressure when reinstalled in accordance with these Orders.

Safety Relief Valve: An automatic pressure actuated relieving device suitable for use either as a safety valved or relief valved, depending on application.

Safety Valve: An automatic pressure relieving device actuated by the static pressure upstream of such device and characterized by full opening pop action. It is used for gas or vapor service.

Secondhand Boiler: A boiler that has changed both ownership and location.

Shop Inspection: Inspection of boilers and fired pressure vessels in a fabricator's shop, or at the jobsite during erection, as required by the Code.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of subsection (e-2) and amendment of subsection (s-4) filed 8-12-76; effective thirtieth day thereafter (Register 76, No. 33). for prior history, see Register 75, No.6
2. Amendment filed 6-15-79; effective thirtieth day thereafter (Register 79, No. 24).
3. Amendment filed 5-28-81; effective thirtieth day thereafter (Register 81, No. 22).
4. Editorial correction of printing error in Internal Inspection (Register 92, No. 29).

## Article 3. Design and Construction

### § 754. Design and Construction of Power Boilers and High Temperature Water Boilers.

All new power boilers and high temperature water boilers shall be constructed, inspected, and stamped in full compliance with the applicable sections of the Code, unless the design and construction of the boiler are accepted by the Division as equivalent to Code.

HISTORY

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.
2. Repealer and new section filed 8-12-76; effective thirtieth day thereafter (Register 76, No. 33).

### § 755. Design and Construction of Fired Pressure Vessels.

(a) All fired pressure vessels shall be constructed, inspected, and stamped in accordance with the Code insofar as applicable. Those vessels not included in the scope of the Code shall be designed and constructed in accordance with good engineering practice regarding pressure vessel design for the pressure and temperature to be expected in service with a factor of safety of at least four.

(b) Good engineering practice as used in this article shall be construed to require the employer to provide details of design and construction which will be as safe as otherwise provided by the rules in the Code including shop inspection.

HISTORY

1. Repealer and new subsection (a) filed 8-12-76; effective thirtieth day thereafter (Register 76, No. 33).

### § 756. Design and Construction of Low-Pressure Boilers.

All new low-pressure boilers shall be constructed, inspected, and stamped in accordance with the Code, unless the design and construction are accepted by the Division as equivalent to Code.

HISTORY

1. Repealer and new section filed 8-12-76; effective thirtieth day thereafter (Register 76, No. 33).

### § 757. Design and Construction of Nuclear Boilers.

All pressure vessels installed as a part of a nuclear boiler shall be constructed, inspected, and stamped in accordance with the Code, unless the design and construction are accepted by the Division as equivalent to Code.

All piping included as a part of a nuclear boiler, up to and including the valve or valves required to isolate the boiler system, shall be constructed, inspected, and stamped in accordance with the requirements for pressure piping in Section I of the Code—except that the Code symbol stamp may be omitted from the stamping required by that section of the Code.

NOTE: Authority cited: Section 6307, Labor Code. Additional authority cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 12-17-65; effective thirtieth day thereafter (Register 65, No. 24). Former section 757 renumbered to 758.
2. Repealer and new section filed 8-12-76; effective thirtieth day thereafter (Register 76, No. 33).

### § 758. Maximum Allowable Working Pressure of Existing Installations.

(a) The maximum allowable working pressure of any code boiler shall be determined by the provisions of the code effective when the boiler was manufactured and upon its condition, determined after an internal inspection.

(b) The maximum allowable working pressure of any non-code power boiler shall be determined by the standards of the Code with a factor of safety not less than:

(1) Five if the boiler had been inspected and reported to the Division prior to January 1, 1936.

(2) Eight if the boiler had not been inspected and reported to the Division prior to January 1, 1936, and is of lap seam construction.

(3) Seven if the boiler had not been inspected and reported to the Division prior to January 1, 1936, and is of butt-strap construction.

(4) Six if of welded construction, providing it can be proven to the satisfaction of the Division that the material, workmanship, and details of construction are equivalent to the requirements for Code boilers.

(5) The factor of safety permitted at the time of last internal inspection prior to the adoption of these orders; provided, however, that a lower factor of safety may be allowed at the discretion of the Division.

(c) A higher factor of safety than provided for in (b) above may be applied at subsequent inspections by any qualified inspector when deterioration or other defects are found that affect the safety of the boiler.

(d) The maximum allowable working pressure of a fired pressure vessel constructed prior to the effect date of these orders shall be established in accordance with the rules of the code when applicable, or in accordance with good engineering practice regarding pressure vessel design.

HISTORY

1. Renumbered from former Section 757 (Register 65, No. 24).

## Article 4. Installation

### § 761. Safety Valves and Pressure Relieving Devices, Boilers.

(a) Each power boiler, nuclear boiler, and high temperature water boiler shall have safety valves or pressure relieving devices constructed, stamped and installed in accordance with the applicable section of the Code, except:

(1) For existing installations the stamping required by the Code at the time of original installation may be accepted until the valves are replaced.

(2) Upon written request by the employer, the Division may permit three–way two–port valves to be installed under two safety valves, each with the required relieving capacity, provided they are so installed that both safety valves cannot be closed off from the boiler at the same time and provided the three–way valve will permit at least full flow to the safety valve in service at all time.

(b) The user shall maintain all pressure relieving devices in good operating condition. Where the valves cannot be tested in service, the user shall maintain and make available to the inspector records showing the test dates and set pressure for such valves.

(c) Pressure relieving devices with open discharge installations shall have piping and supports designed for pressure relief reaction forces in accordance with Appendix II of ANSI B 31.1.

The discharge from pressure relieving devices shall be piped to a safe location where:

(1) The discharge of steam or hot water will not present a hazard to employees.

(2) The discharge of steam or water will not be detrimental to any electrical or other machinery or equipment.

(3) The discharge pipe cannot be readily plugged or otherwise obstructed.

NOTE: Authority cited: Section 142.3, Labor Code . Reference: Section 142.3, Labor Code .

HISTORY

1. Amendment filed 11–2–66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.
2. Amendment filed 6–16–79; effective thirtieth day thereafter (Register 79, No. 24).
3. Change without regulatory effect inserting "(a)" immediately preceding the first paragraph and "(b)" immediately preceding the fourth paragraph, filed 1–24–91 pursuant to section 100, Title 1, California Code of Regulations (Register 91, No. 7).

## § 762. Safety Valves and Pressure Relieving Devices, Fired Pressure Vessels.

(a) Boilers (or vaporizers) of the Dow–therm, mercury vapor or similar types shall be fitted with adequate safety relieving devices to assure their safe operation. Safety valves of Dow–therm vaporizers and similar equipment shall be removed at least once each year for inspection and cleaning of any deposits that might affect their operation. (To eliminate the necessity of shutting the unit down for this inspection, a three–way stop valve may be installed under 2 safety valves, each with the required relieving capacity, and so installed that both safety valves cannot be closed off from the vaporizer at the same time; or 2 or more separate safety valves may be installed with individual shutoff valves, in which case the shutoff valve stems shall be mechanically interconnected in a manner which will allow full required flow at all times.)

(b) Fired pressure vessels other than those mentioned in (a) above shall be fitted with safety relieving devices of sufficient capacity to relieve all vapor that can be generated in the vessel during normal operation and shall be fitted with proper controls to assure their safe operation.

HISTORY

1. Amendment filed 11–2–66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

## § 763. Low–Pressure Boilers.

(a) All low–pressure boilers shall be installed and fitted with the fittings and appliances required by the Code, and any additional appurtenances required in the following subsections.

(b) When a hot water heating boiler is equipped with an electrically operated circulating pump and electrically operated burner controls, the control switches shall be labeled to show which is for the burner circuit and which is for the pump circuit, or the electrically operated burner controls shall be connected in the electric circuit ahead of the automatic pump switch or the burner control switch shall be mechanically interlocked to the disconnect switch for the circulating pumps.

(c) All low–pressure boilers shall be equipped with one or more pressure relieving device adjusted and sealed so as to discharge at a pressure not to exceed the maximum allowable working pressure of the boiler. The combined capacity of these devices shall be such that with the fuel burning equipment installed and operating at maximum capacity the pressure cannot rise more than 5 psi for steam boilers or 10% for water boilers above the maximum allowable working pressure of the boiler. All pressure relieving devices shall be installed as required by the Code and be ASME stamped and rated and shall be installed with the valve spindle vertical and shall have a manual lifting device to permit periodic testing.

The discharge from all drains and pressure relieving devices shall be piped to a safe place of discharge and shall have no shutoff valves in the pipe between the pressure relieving device and point of discharge.

A safe place of discharge as used in this section shall be a location where:

(1) The discharge of steam or hot water will not present a hazard to employees.

(2) The discharge of steam or water will not be detrimental to any electrical or other machinery or equipment.

(3) The discharge pipe cannot be readily plugged or otherwise obstructed.

(d) All automatically controlled low–pressure boilers shall be equipped with:

(1) A low–water control that will close the main burner fuel valve when the water in the boiler reaches the lowest operating level, or for boilers with no fixed steam or water line, when the highest permissible operating temperature is reached.

(2) A low–water safety cutout that will shut off the fuel to the burner when the water in the boiler reaches a predetermined level which shall not be below the lowest permissible level, and manual resetting of the low–water control or of the fuel valve or of the emergency control system shall be required to place the boiler back in operation after it has been shut down due to the operation of the low–water safety cutout.

(3) An adjustable operating control and fuel valve to regulate the flow of fuel to the burner to maintain the pressure or temperature below the following limits:

(A) 15 psi gage pressure for steam boilers.

(B) 250 F water temperature for water boilers.

(4) A high–limit safety control that will shut off fuel to the burner when the pressure in a steam boiler reaches a predetermined maximum not to exceed 15 psi gage or when the temperature in a water boiler reaches a predetermined maximum not to exceed 250 F. The high–limit safety control mechanism shall be in addition to the operating control required in (d)(3) above and manual resetting of the high–limit control or of the fuel valve or of the emergency control system shall be required to place the boiler back in operation after it has been shut down due to the operation of the high–limit safety control.

(5) (A) A full safety pilot control on boilers equipped with standing pilot burners, other than those included in subsection 763 (d)(5)(B), that will shut off the fuel to the main burner and any extinguished pilot burners if a pilot light is extinguished.

Such device shall actuate to close the safety fuel shutoff valve required in Subsection 763 (d)(6) within the time limits specified for flame failure shutoff in Table 1.

(B) A programmed flame safeguard system on burners equipped with spark ignition that will include a flame failure shutoff time not greater than specified in Table 1. Such system shall require the services of the attendant to place the boiler back into operation if a flame failure should occur while in operation or if the flame is not established within the time limit programmed into the system. Such time limits shall not exceed that specified for flame failure shutoff in Table 1.

**Table 1. Flame Failure Shutoff Times (1)**

| Maximum Firing rate Oil Gal. per hr. | Maximum Firing rate Gas BTU/hr. | Type of Ignition | Maximum time until valve is fully closed, seconds | |
|---|---|---|---|---|
| 3 gallons or less | | Unproved | 90 | |
| Over 3 gallons to 7 gallons | | Pilot or | 30 | (2) |
| Over 7 gallons to 20 gallons | | Ignition | 10 | (2) |
| Over 20 gallons | | Proved Pilot | 60 | (3) |
| | 400,000 BTU and under | Proved or Unproved Pilot | 90 | |
| | 400,001 BTU and over | Proved Pilot (4) | 10 | |

NOTE 1. Flame failure shutoff as used in these Orders means the total elapsed time from the time of flame failure or other abnormal condition occurs until the fuel shutoff valve is closed.

NOTE 2. Where a burner is designed or equipped for a "starting firing rate" of less than the maximum firing rate of the burner, the flame failure shutoff time shown in Table 1 for the lesser firing rate may be used for establishing ignition, provided that firing rate cannot be increased until ignition is proven. The time limit for flame failure shutoff shall be determined by the maximum burner input.

NOTE 3. The 60-second time limit for flame failure shutoff may be used for burners having less than 20 gallons per hour input if equipped with a proved pilot.

NOTE 4. In case of pilot flame failure, the proved pilot shall de-energize the safety fuel shutoff valve electrical circuit and cause that valve to close within 10 seconds.

(6) In addition to the operating fuel shutoff valve(s) required in 763 (d) (1) and (3), an additional safety fuel shutoff valve that will be operated by the controls required by Section 763 (d) (2), (4), and (5). This valve shall be of a type that will close within 2 seconds after being de-energized if the burner input rating exceeds 400,000 BTU/hr.

(7) A means for obtaining adequate combustion chamber purging and for limiting the burner "trial for ignition" time during start up to 15 seconds or that permitted for flame failure shutoff in Table 1, whichever is greater.

(e) All low-pressure boilers shall be equipped with a pressure or altitude gage as required by the code. All water boilers shall be equipped with a thermometer to indicate temperature conditions at or near the hot water outlet. These devices shall be visible to the operator from the operating area.

(f) All low-pressure steam boilers shall be equipped with one or more water gage glass with shutoff valves and drain cocks. These devices shall be located on the boiler, or on a water column, within the permissible water level range for the boiler (unless specifically exempted by the Code).

(g) All hot water heating systems shall be equipped with a suitable expansion tank that will be consistent with the volume, temperature, pressure, and capacity of the system as required by the Code. All such expansion tanks shall have an allowable working pressure at least equal to the maximum allowable working pressure of the boiler with which they are used, and the maximum allowable working pressure shall be stamped on a nameplate visible after installation.

All expansion tanks connected into systems having boilers designed for more than 30 psi working pressure shall be constructed, inspected, and stamped according to the Code, Section VIII, unless it can be proven to the satisfaction of the Division that the design and construction will provide equivalent safety. Expansion tanks connected into systems having boilers designed for 30 psi or less shall be designed, constructed, and stamped according to the Code, Section VIII, or according to good engineering practices with a factor of safety of at least 4.

All expansion tanks shall be fitted with either: (1) a water gage glass or other means for indicating visually the water level in the tank, or (2) a bladder-type expansion tank provided the tank is fitted with an airtight bladder inside the tank and it is provided with a means of determining the presence of air cushion in the tank. The hot water heating system shall be installed, inspected, and equipped with the required safety relief and shut-off devices in accordance with the Uniform Mechanical Code, Chapter 10, February 1997 Edition.

(h) When low-pressure boilers are equipped with a float-type automatic water feeder, such water feeder shall be fitted with a valved drain on the float chamber. Float chambers of other control devices shall also be provided with valved drains on the float chambers.

(i) All valves, fittings, and controls shall be suitable for the pressures and temperatures expected in service and all such devices used in the fuel system shall be suitable for and compatible with the fuel and fuel pressures used. All electrically operated fuel valves shall be of the normally closed type to open only when energized. Fuel valves of a type that will fail to close due to abnormal fuel pressure shall not be permitted. Automatically operated fuel valves shall not be designed with integral manually operated by-passes unless such by-pass is of the constant pressure type.

(j) The electrical circuit for boiler controls shall not exceed 120 volts and shall be 2-wire with 1-conductor grounded and have the controls in the ungrounded conductor.

(k) After installation and before being placed in operation, the employer shall require all controls and burners to be checked for proper operation by a responsible person familiar with burner controls.

Instruction for the proper method of lighting, relighting, and shutting down the burner, type of fuel or fuels to be used, and the maximum fuel pressure shall be shown on a permanent and legible plate attached to the boiler or boiler casing and an operating manual giving complete boiler operating instructions, shall be furnished by the installer for each installation. The employer shall require operating personnel to become thoroughly familiar with these operating instructions before they are permitted to operate the boiler. These instructions shall include an instruction to the operator that the boiler shall not be placed back in service after having been shut down by the operation of the safety fuel shutoff valve required in 763 (d) (6) until the cause of such shutdown has been determined and corrected and the combustion chamber is properly purged.

NOTE: Authority cited: Section 142.3, Labor Code . Reference: Section 142.3, Labor Code .

HISTORY

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.
2. Amendment of subsection (c) filed 5-31-74; effective thirtieth day thereafter (Register 74, No. 22).
3. Amendment filed 8-12-76; effective thirtieth day thereafter (Register 76, No. 33).
4. Amendment of subsection (g) and new NOTE filed 12-2-97; operative 1-1-98 (Register 97, No. 49).

## § 764. Blowoff Valves and Tanks.

(a) All boilers subject to these orders shall have blowoff valves and piping installed in accordance with the Code.

(b) All blowoff pipes shall terminate at a safe place of discharge and shall be adequately supported to prevent undue stresses on the valves or lines, and shall not be reduced in size between the blowoff valve and point of discharge.

Blowoff valves constructed with integrally threaded bonnets shall not be permitted.

No blowoff pipe shall discharge directly into a sewer. When the blowoff discharge is to be ultimately led to a sewer, local plumbing codes shall be consulted concerning requirements for discharging products into sewers.

When a blowoff tank is used, it shall be designed and constructed in accordance with good engineering practice for the maximum pressure and temperature expected during the blowdown period with a factor of safety of at least 4. All blowoff tanks shall be provided with means for cleaning and inspection.

HISTORY

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 765. Means of Feeding Water to Boilers.

All power boilers subject to these Orders shall be equipped with at least one means for feeding water to the boiler at the maximum allowable pressure. Boilers having more than 500 square feet of water heating surface shall have at least 2 means of feeding when required by paragraph PG–59(d)(2)(g) of the Code. A water supply system may be considered as a means of feeding water to the boiler where the water pressure in the system is not less than 6 percent above the pressure at which the safety valve is set to open. Feed piping, valves, and appurtenances shall be installed as required by the Code.

HISTORY

1. Amendment filed 11–2–66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 766. Water and Pressure Gages.

All power boilers and high–temperature water boilers subject to these Orders shall be equipped with water gages and pressure gages as required by the Code.

HISTORY

1. Amendment filed 11–2–66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 767. Reinstallation of Secondhand Power Boilers.

When a power boiler changes both ownership and location, the purchaser shall report the state serial number and the new proposed location to the division.

### § 768. Access for Inspection and Cleaning.

(a) Where it is impracticable to remove the hood of any vertical fire–tube boiler for inspection purposes, an access opening of the following dimensions shall be provided in the hood:

(1) For boilers not exceeding thirty–six inches (36″) diameter, not less than six inches by eight inches (6″ x 8″) or equivalent area with a minimum dimension of six inches (6″) in any direction.

(2) For boilers over thirty–six inches (36″) diameter, not less than twelve inches by sixteen inches (12″ x 16″) or equivalent area with a minimum dimension of eleven inches (11″) in any direction and a minimum diameter of fifteen inches (15″) for circular openings.

(b) Access for inspection and cleaning shall be provided in all boiler settings. The minimum dimension of access openings shall be 12 inches by 16 inches, unless the size and/or design of the boiler setting is such that inspection and cleaning can be adequately accomplished through smaller openings.

(c) When 2 or more steam, high–temperature water, or hot water heating boilers having manhole openings are installed in battery or connected to a common main or header, each boiler having a manhole opening shall be fitted with 2 stop valves between the boiler and the common main or header. An ample free blow drain shall be provided between the stop valves and the discharge from the drain shall be visible to the operator while manipulating the drain valve.

HISTORY

1. Amendment filed 11–2–66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 769. Boiler Installation.

(a) Effective for boiler installation and/or relocation building permits issued on or after November 1, 2002, all boiler supporting structures shall be designed for the following loads:

(1) The live and dead load of the boiler as prescribed in the 2001 California Building Code.

(2) Other imposed loads including those resulting from wind, and seismic forces, as prescribed in the 2001 California Building Code.

(b) Each member of a structural support shall be so located or insulated that the heat from the boiler cannot warp or impair its strength.

(c) The installation of water–tube boilers in battery settings shall be prohibited unless provisions are made at the time of installation to make possible the periodic inspection of the exterior surfaces of all heads installed in the common wall.

(d) The installation of horizontal tubular boilers in battery settings shall be prohibited, unless the boilers are suspended by independent outside suspension structures with top crossbeams sufficiently strong to safely carry all the boilers without intermediate supports.

(e) Each boiler shall be installed in such a manner that all external surfaces and all appurtenances can be made accessible for inspection, cleaning, maintenance, and operation.

(f) Adequate passageways or work areas at least 24 inches wide shall be provided for safe access to and operation of controls.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11–2–66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.
2. Amendment filed 4–1–77; effective thirtieth day thereafter (Register 77, No. 14).
3. Amendment of subsection (a)(3) filed 7–27–77; effective thirtieth day thereafter (Register 77, No. 31).
4. Amendment of section heading and section and new NOTE filed 1–9–2003; operative 2–8–2003 (Register 2003, No. 2).

## Article 5. Inspection

### § 770. Boilers Subject to Annual Inspection.

(a) All boilers subject to these Orders are subject to annual internal and external inspection, except as provided in subsection (b), and except those boilers exempted from annual inspection in Section 771.

(b) Boilers installed in turboelectric plants in such a manner that each boiler furnishes steam to a single turbine only shall be inspected internally at least once each eighteen (18) months. The permit to operate issued following internal inspection shall expire not more than twelve (12) months after the date of inspection. The boiler shall be externally inspected prior to or on the expiration date of the permit by a qualified inspector who may, if conditions warrant, issue a temporary permit which shall expire not more than six (6) months after the date of external inspection. A copy of the external inspection report shall be forwarded to the Division by the qualified inspector. Such report shall show the expiration date of the temporary permit to operate.

The Division, upon individual application from petroleum companies, chemical plants, public utilities or other industries considered by the Division as having superior preventive maintenance and examination programs, may grant a maximum interval of thirty–six (36) months between internal inspection of fired boilers. A fired boiler is defined for this section as one whose temperature input can cause metallurgical damage to the boiler, or whose combustion of fuel can cause a furnace explosion. For boilers other than fired boilers, the Division may grant a maximum interval of seventy–two (72) months between internal inspections, provided the temperature input cannot cause metallurgical damage. Boilers of the latter type are typically called process steam generators. Such applications, to be reviewed by the Division, shall contain as a minimum the following information and proposals:

(1) The history of the unit (or of a similar installation) that shows that there is no significant deterioration from scaling, corrosion, erosion or overheating.

(2) Wall thickness reference points shall be established. Following internal inspection of each boiler, a complete record showing the total corrosion and any other conditions found which need correction at the time of inspection shall be forwarded to the Division as part of the inspection report required by 774(a)(1). This record shall show the location and extent of any corrosion, erosion or other defects noted and shall be verified and signed by the certified inspector making the inspection required by Section 770(a).

(3) The "Permit to Operate" shall expire one (1) year from the date of the internal inspection, or the date of startup if so noted on the inspection report and the "Permit to Operate." Prior to or on the expiration date of this "Permit," a certified inspector, who will review the operating logs and water treatment records, shall inspect the boiler externally. If condi-

tions warrant, the certified inspector may issue a temporary permit not to exceed six (6) months. Prior to or on the expiration date of the second permit, the boiler shall again be inspected externally by a certified inspector; if conditions warrant, a "Permit" may be issued for an additional six (6) months.

Boilers operating longer than twenty-four (24) months between internal inspections shall have a program of on-stream examination of corrosion points, and inspection of operations and safety controls that is acceptable to the Division, and the certified inspection agency. The maximum interval of each temporary permit shall be six (6) months.

If the boiler is located within a local jurisdiction that has regulations concerning boiler inspections, the jurisdiction must also be consulted concerning the acceptability of the inspection program.

The certified inspector shall submit reports to the Division of each external inspection, noting the expiration date of the permit issued, and recording any unusual condition found. The inspection report shall include a statement that water treatment records have been reviewed. Reports of on-stream wall thickness readings must also be submitted to the Division via the certified inspector.

(4) For boilers and process steam generators where metallurgical damage may occur, the Division may categorize the boiler or process steam generator as unfired upon acceptance of a risk engineering analysis submitted by the owner of the boiler to the Division. The risk engineering analysis shall include the design basis for categorizing the boiler as unfired, the potential consequences to the boiler and to the safety of the person(s) responsible for attending the boiler, and a discussion of protective devices and specific procedures to prevent the consequences.

(5) The boiler water treatment and specific chemical limits shall be prescribed by a competent water treatment specialist, such as a chemical engineer. The boiler water chemistry shall be maintained within desirable limits and documentary records shall be kept of the tests and methods used to maintain the water chemistry within the prescribed limits. A summary of weekly test results shall be kept, and the records shall be available to the certified inspector.

(6) A copy of the Division letter granting the longer interval between internal inspections shall be posted near the boiler, the boiler control center, or the process unit control room.

NOTE: Authority cited: Sections 142.3 and 7682, Labor Code. Reference: Sections 142.3 and 7682, Labor Code.

HISTORY

1. Amendment of subsection (b) filed 10-25-74; effective thirtieth day thereafter (Register 74, No. 43).
2. Amendment of section and new NOTE filed 8-2-2005; operative 9-1-2005 (Register 2005, No. 31).

### § 771. Boilers Not Subject to Annual Inspection.

(a) The following boilers are not subject to annual inspection and do not require a permit to operate providing they comply with all of the provisions of subsection (b):

(1) Low-pressure boilers.

(2) Miniature boilers.

(3) High-temperature water boilers.

(4) Boilers, including forced circulation boilers, in which none of the following are exceeded:

(A) One hundred square feet (100 sq. ft.) of heating surface.

(B) Steam drum does not exceed 16 inches inside diameter.

(C) Maximum allowable working pressure does not exceed 100 psi.

(D) Water capacity does not exceed 35 gallons when filled to normal operating level.

(E) The BTU input to the burners does not exceed 400,000 BTU/hr.

(b) Boilers exempt from annual inspection in subsection (a) shall comply with all of the following:

(1) All other provisions of these Orders including construction and installation.

(2) Automatically controlled fired boilers shall be fitted with all the applicable controls required for low-pressure boilers in 763(d).

(3) All automatic controls shall be maintained in operating condition.

(c) Nothing in sections (a) and (b) above shall prohibit any qualified safety engineer employed by the Division from requiring any boiler to be prepared for inspection when in his opinion such inspection is necessary to determine the safety of the boiler.

HISTORY

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 772. Preparation of Boilers for Inspection.

(a) The owner or user of a boiler or boilers herein required to be inspected shall, after 14 days' notice from the division, prepare the boiler for internal inspection.

If the owner or user finds the date set for inspection not to his convenience, he shall immediately advise the division, or qualified inspector, and ask for a postponement and state the reasons therefor, in which case the inspection date may be postponed for a period not to exceed thirty (30) days from the date first set for inspection.

(b) To prepare a boiler for internal inspection the water shall be drawn off and the boiler thoroughly washed. Manhole and handhold covers and washout plugs in the boiler feed lines and water column connections necessary for adequate inspection shall be removed and the furnace and combustion chamber thoroughly cooled and cleaned. Enough of the brickwork, refractory, or insulating material shall be removed to permit the qualified inspector to determine the condition of the boiler, furnace, or other parts and to enable the qualified inspector to obtain such data as is required at each annual inspection. The steam gage shall be removed for testing. At the discretion of the Division, data obtained by nondestructive examination may be used in lieu of visual inspection.

(c) The owner or user shall prepare the boiler for hydrostatic test when required by the qualified inspector. If the boiler to be hydrostatically tested is connected with other boilers that are under steam pressure, such connections shall be blanked off unless provided with double stop valves with a free blow drain between the valves.

(d) Before a resale inspection or other inspection of a secondhand boiler is made, the interior of the shell or drum may be required to be descaled and cleaned, such tubes shall be removed as the qualified inspector deems necessary to enable him to ascertain their condition, the lagging and brickwork shall be removed, and the exterior of the shell or drum shall be cleaned. No paint shall be applied before the inspection is made.

HISTORY

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 773. Identification of Boilers.

(a) Qualified inspectors making the first field inspection of boilers required by these Orders to have a permit to operate, shall stamp on the boiler a state serial number (unless a state serial number has previously been stamped thereon) which shall become a permanent means of identification. This assigned number shall be made either by steel die figures not less than 5/16-inch in height, or outlined by means of center punch dots, with figures not less than 3/4-inch in height, and shall be stamped adjacent to the manufacturer's code stamping.

(b) No state serial number or code stamping shall be permanently covered by insulating material, unless such number and stamping is transferred to a fixed plate where readily visible outside of all insulating material.

HISTORY

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 774. Boilers Exempt from Inspection by Qualified Safety Engineers Employed by the Division.

(a) Boilers annually inspected internally and externally by qualified inspectors employed by a company, city or county, may be exempt from annual inspections by qualified safety engineers employed by the division providing:

(1) Reports of inspection are submitted on prescribed forms to the Division within 21 days after the date of inspection.

(2) The boiler and all of its appurtenances complies with these orders as a minimum standard of safety.

(3) The report of inspection lists all repairs or changes ordered and the qualified inspector notifies the division when such repairs or changes have been satisfactorily completed.

(4) The permit to operate is posted on or near the boiler to which it applies.

(b) Nothing in this order shall prevent a qualified safety engineer employed by the division from inspecting any boiler. However, no fee shall be charged by the division where the annual inspection has been made and the report of inspection submitted to the division by a qualified inspector within the 21 days specified above and the permit to operate is posted on or near the boiler.

(c) Qualified inspectors employed by insurance companies shall notify the Division within 21 days of the name of the owner or user, as shown on the permit to operate, and the location and state serial number of every boiler requiring a permit to operate on which insurance has been refused, canceled, or discontinued, and shall give the reasons why.

(d) Qualified inspectors employed by other than insurance companies shall notify the Division within 21 days of the name of the owner or user and the location and state serial number of every boiler requiring a permit to operate and inspected by them which is removed from service or which is considered unsafe for further service as a boiler and shall give the reasons why.

HISTORY

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 775. Operation of Unsafe Boilers.

(a) If the operation of any boiler, including those exempt from annual inspection, constitutes a serious menace to the life or safety of any person employed about it, the division or any of its safety engineers, or any person affected thereby, may apply to the superior court of the county in which the boiler is situated for an injunction restraining its operation until the condition has been corrected.

(b) Whenever the condition of a boiler is such as to make it unfit for any pressure, a qualified safety engineer, employed by the division, may affix a rejection mark( $\frac{0}{x}$ )consisting of an "X" at least one inch (1") high with a circle at least one-half inch (1/2") diameter located between the upper arms of the "X." The rejection mark shall be outlined in center punch marks and located immediately above the state serial number.

### § 776. Special Inspection of Lap Seam Boilers.

(a) Horizontal return tubular boilers over thirty-six-inch (36") diameter with longitudinal lap-riveted seams shall not be operated at a pressure in excess of fifty pounds (50 lbs.) per square inch unless all of the following are done every five (5) years of operation:

(1) Sufficient tubes are removed to permit the internal surfaces of the shell to be completely cleaned of scale.

(2) Sufficient brickwork is removed to permit the external surfaces of the longitudinal seam to be cleaned.

(3) Before the tubes and brickwork are replaced the boiler shall be thoroughly inspected internally and externally by a qualified inspector. The tubes shall then be replaced and the boiler shall be subject to a hydrostatic test of one and one-half (1 1/2) times the working pressure. This pressure shall be maintained for at least thirty (30) minutes after which a qualified inspector shall examine all riveted joints for leakage and/or cracks.

The term five (5) years used in this section shall mean five (5) years under steam, but in no case shall the time of service be taken as less than six (6) months per calendar year; a hydrostatic test of one and one-half (1 1/2) times the allowed pressure on the boiler shall be made in the presence of a qualified inspector at least every five (5) calendar years. Each boiler shall be subject to any additional requirements found necessary by the qualified inspector.

(b) Secondhand lap seam horizontal return tubular boilers exceeding thirty-six inches (36") diameter shall not be permitted a maximum allowable working pressure in excess of fifty (50) psi.

(c) The shell or drum of a boiler in which a typical lap seam crack is discovered along a longitudinal riveted seam for either butt-strap or lap-riveted construction shall be permanently discontinued for use under pressure. By lap seam crack is meant the typical crack frequently found in lap seams extending parallel to the longitudinal joint and located either between or adjacent to rivet holes.

### § 777. Boiler and Fired Pressure Vessel Inspection Fees.

See the Division of Industrial Safety's regulations contained in Chapter 3.2, Group 2, Title 8, California Administrative Code. The shop inspection fees, permit fees, and inspection fees for boilers and fired pressure vessels are reprinted in Appendix 2 of these orders.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 3-28-78; effective thirtieth day thereafter (Register 78, No. 13). For history of former section, see Register 77, No. 49.

### § 778. Field Inspection Fees.

HISTORY

1. Repealer filed 12-1-77; effective thirtieth day thereafter (Register 77, No. 49). For prior history, see Register 76, No. 33.

### § 779. Certification of Inspectors.

(a) Upon the written request of his employer, a certificate of competency may be issued to a person who is employed as provided in subsection (c) following and who obtains a passing grade in the examination prescribed by the division. The prescribed examination may be that of the National Board and shall determine the fitness and competency of any candidate for this certificate. An average of at least seventy percent (70%) shall be required for a passing grade.

(b) An applicant for a certificate of competency shall be at least three (3) years experience in boiler or unfired pressure vessel construction or repair or as an operating engineer in charge of high-pressure boilers or as inspector of steam boilers or unfired pressure vessels.

(1) bachelor of science degree in engineering from an accredited school plus one year experience in design, construction, operation or inspection of high pressure boilers and pressure vessels.

(2) An associate degree in mechanical technology plus two years experience in design, construction, operation or inspection of high pressure boiler and pressure vessels.

(3) A high school education or the equivalent plus three years experience:

(A) in high pressure boiler and high pressure vessel construction or repair, or

(B) in charge of high pressure boiler and pressure vessel operations, or

(C) in the inspection of high pressure boilers and pressure vessels.

(c) A certificate of competency may be issued only to a person employed as an inspector of steam boilers or pressure vessels by any county, city, insurance company, or by the division, or to an inspector continuously employed by a corporation or company to inspect only boilers and pressure vessels to be used by such company and not for resale. The certificate of competency shall be automatically revoked after a period of eighteen (18) months if the inspector does not make any boiler or pressure vessel inspections as evidenced by reports submitted to the division; provided, however, that this provision does not apply to supervising engineers whose regular duties include the supervision and review of the work of qualified inspectors. A written examination is required to revalidate such certificate. The employer shall notify the division when the employment of a certified inspector is terminated.

(d) Any applicant, who has previously obtained and continues to hold a commission as a boiler inspector issued by the National Board of Boiler and Pressure Vessel Inspectors, may be exempted from the written portion of the prescribed examination provided such applicant appears for an interview to determine his physical fitness and to prove his knowledge of the applicable Safety Orders of the Division. He shall have been ac-

tively engaged as a boiler inspector within eighteen (18) months prior to his application for the California certificate of competency.

(e) As near as practicable, the examination for certificate of competency shall be conducted on the first Wednesday in March, June, September, and December of each year.

(f) The Division reserves the right to decline to examine any candidate who has not had at least ninety (90) days' practical field boiler inspection experience under the supervision of a qualified inspector.

(g) Upon good cause being shown therefor, and after notice and an opportunity to be heard, the Division may revoke any certificate of competency.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.
2. Amendment of subsection (b) filed 6-15-79; effective thirtieth day thereafter (Register 79, No. 24).

[The next page is 123.]

3. Amendment of subsections (a) and (b) filed 5-12-89; operative 6-11-89 (Register 89 No. 29).

## Article 6. Operation

### § 780. Permit to Operate.

(a) Except during the time that a request for a permit remains unacted upon, no boiler subject to annual inspection by these orders shall be placed in operation until a permit to operate has been issued and posted on or near the boiler.

(b) Upon the form supplied by the division, a permit to operate shall be issued by the qualified inspector making the inspection. The permit to operate shall indicate the date of inspection, state serial number of the boiler, the pressure allowed at the time of the internal inspection, the name of the inspector, and the name of the inspection agency. No permit shall be issued until the boiler is in compliance with these Safety Orders and satisfactory notice of compliance has been transmitted to the division.

EXCEPTION: The division may issue and renew temporary permits not to exceed thirty (30) days each, to permit replacements or repairs to be made.

(c) Each permit shall be posted under glass in a conspicuous place on or near the boiler. The permit shall be available to any safety engineer employed by the division. The permit to operate shall expire when a boiler changes both ownership and location.

HISTORY

1. Editorial correction restoring inadvertently omitted article heading (Register 97, No. 25).

### § 781. Attendance on Boilers.

(a) All boilers subject to these orders shall be under the direct supervision of a responsible person. Such person shall be responsible for:

(1) Safe operation of the boiler by a competent attendant.

(2) Proper maintenance of the boiler and its appurtenances.

(b) While in operation, no fired boiler subject to these orders [except those boilers exempted from annual inspection by Order 771 that are automatically controlled and oil field recovery heaters complying with subsection (d)] shall be left unattended for a period of time longer than it will take the water level to drop from the normal operating level to the lowest permissible water level in the water gage glass—or indicated by indicating devices or recorders—when the feedwater is shut off and the boilers are forced to their maximum capacity unless all of the following are complied with:

(1) The boiler is equipped with an audible alarm that will operate when the water reaches the highest and lowest permissible operating level, or, for boilers having no fixed steam or water line, when the highest permissible operating temperature is reached.

(2) The audible alarm shall be sufficiently loud that it can be plainly heard by the attendant, without the use of an auxiliary paging system, at any point in any area that the attendant is required to work. He must be close enough to the boiler room so that he can safely respond to the alarm. The response time is that period of time that it takes the water level to go from the level at which the low level alarm sounds down to the lowest permissible water level of the boiler. The high water level alarm must be set so that the attendant will have time to respond before there will be carryover from the boiler.

(3) The boiler is equipped with a low water safety device that will shut off the fuel to the burner or burners when the water reaches the lowest permissible operating level, or, for boilers having no fixed steam or water line, when the highest permissible operating temperature is reached. This device shall require manual resetting unless the pilot is equipped with a full safety pilot control.

(4) The attendant shall personally check the operation of the boiler, the necessary auxiliaries and the water level in the boiler at such intervals as are necessary to insure the safe operation of the boiler; provided, however, that the maximum interval the boiler and its auxiliaries can be left without checking shall not exceed 60 minutes. The operation of the automatic controls shall be checked at the beginning of each shift. It is the intent of this Section to prohibit the use of time clocks to control the operation of fired boilers covered under this subsection 781(b).

(5) All float chambers of automatic controls shall be dismantled for inspection at the annual boiler inspection.

(c) The competent attendant shall be a person who is familiar with the boiler and who has been properly instructed in its safe operation.

The recommended minimum standards to be used by the employer to determine the competency of an attendant are:

(1) He shall be able to explain the function and operation of all controls on the boiler or boilers.

(2) He shall be able to light off the boiler or boilers in a safe manner.

(3) He shall know all possible methods of feeding water to the boiler or boilers.

(4) He shall know how to blow down the boiler or boilers in a safe manner.

(5) He shall know what would happen if the water was permitted to drop below the lowest permissible operating level.

(6) He shall know what would happen if the water in the boiler was carried too high.

(7) He shall know how to shut down the boiler or boilers.

(d) An oil field recovery heater designed for automatic operation shall be checked by a competent attendant at least once every 24 hours while in operation to determine that the heater is operating safely within the set operating conditions and provided that each of the following are complied with:

(1) The heater is equipped with automatic safety shutdown devices for each of the following conditions:

(A) Excessive tube skin or steam temperature

(B) Excessive steam pressure

(C) Flame failure

(D) Inadequate combustion air

(2) Within intervals not to exceed every 60 days of operation of the heater, the following inspection checks shall be performed by a person familiar with the equipment and who has been properly instructed in making such checks:

(A) Each safety shutdown device shall be tested for proper operation.

(B) All external piping and wiring shall be visually checked for obvious defects.

(C) All indicating gages shall be checked for proper calibration.

Equipment defects found in (A), (B), or (C) above shall be corrected before continuing the boiler in service.

(3) At the time of the annual inspection of the heater and its accessory equipment, all automatic operating controls and automatic safety shutdown devices which are not failsafe shall be serviced as necessary to assure their continued reliability to include:

(A) Replace vacuum tubes and check sensing devices in the flame-failure system and replace if not operating properly.

(B) Test all coils, diaphragms, and other operating parts of all safety shutdown and operating control valves. Such servicing shall be done by a person familiar with such controls and devices and who has been properly instructed in their servicing.

(4) A record shall be kept of the inspection and maintenance operations required by (2) and (3) above and this record shall be available to the certified inspector at the time of the annual inspection.

NOTE: Authority cited: Sections 6312, 6500 and 6502, Labor Code.

HISTORY

1. Amendment filed 12-17-65; effective thirtieth day thereafter (Register 65, No. 24).
2. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.
3. Amendment of subsection (b)(2) filed 12-31-74; effective thirtieth day thereafter (Register 75, No. 1).

### § 782. Safe Practices.

(a) The following Safety Orders from Title 8, California Administrative Code are hereby made a part of these orders:

(1) General Industry Safety Order 3228(i): Number of Exits, Boilers Furnace and Incinerator Rooms. See Appendix 1.

(2) General Industry Safety Order 3274: Valves and Controls. See Appendix 1.

(3) General Industry Safety Order 3311: Flarebacks. See Appendix 1.

(4) General Industry Safety Order 3312: Entering Combustion Chambers, Flues, Boilers or Unfired Steam Pressure Vessels. See Appendix 1.

(5) General Industry Safety Order 3310: discharge Location. See Appendix 1.

(6) General Industry Safety Order 3514: Tubular Gage Guard. See Appendix 1.

(7) General Industry Safety order 3515: Try Cock Discharge Receptable. See Appendix 1.

(8) General Industry Safety Order 3516: Steam Gage and Water Gage Glass Location. See Appendix 1.

(b) All fired boilers, not included in Sections 763 and 771, equipped with controls to permit the burners to be ignited automatically shall be equipped with a full safety pilot or other device that will provide equivalent safety. Such safety pilot or other device shall be of a type that will de-energize the electrical circuit and/or cause the main burner fuel valve to close within the following burner input and time limits.

| | |
|---|---|
| 400,000 BTU/HR and under | 90 seconds |
| 400,001 to 2,500,000 BTU/HR | 9 seconds |
| Over 2,500,000 BTU/HR | 5 seconds |

(c) All dampers used in smokestacks of boilers which use natural draft shall have suitable openings to vent the furnace.

(d) When portable electric lights are used inside any boiler or pressure vessel they shall be equipped with a vaportight globe, substantial guard, rugged nonconducting lamp holder and handle, and shall have type S cord or equivalent sufficiently long to reach to a plug–in or junction box outside the vessel.

HISTORY

1. Repealer and new subsection (b) filed 8–12–76; effective thirtieth day thereafter (Register 76, No. 33). For prior history, see Register 74, No. 42.
2. Amendment of subsection (a) filed 12–14–76; effective thirtieth day thereafter (Register 76, No. 51).

## Article 7. Repairs

### § 783. Renewals and Replacements.

All renewals or replacement boiler drums, shells, headers, tubes or appurtenances shall comply with the requirements of the code for new construction.

### § 784. Approval and Reporting of Repair.

(a) No repairs to drums, shells, stayed or unstayed surface of a boiler shall be made until the contemplated repairs have been approved by a qualified inspector. (This order shall not prohibit the replacement of tubes, staybolts and/or appurtenances without inspection where replacement is necessitated by normal usage and wear.)

(b) No repairs shall be made to any boiler which has moved from its setting or foundation due to the failure of the boiler or any part thereof until approved by the division.

(c) All repairs by fusion welding or riveting to a damaged boiler or boiler support, where the safety of the boiler is concerned, shall immediately be reported to the division by the qualified inspector who authorized the repair. Complete details with sketches of all repairs, including the identification number of the welder, if welding is used, shall be submitted to the division by the qualified inspector.

### § 785. Permissible Welded Patches and Welded Repair of Cracked Plates in Material of Known Weldable Quality.

*The following welded repairs are permissible:*

(a) Cracks in unstayed shells, drums, or headers of boilers or fired pressure vessels may be repaired by welding provided:

(1) The cracks do not extend between rivet holes in a riveted longitudinal seam.

(2) The crack is not located within six inches (6″) of the calking edge of any longitudinal riveted seam.

(3) The total length of any one crack shall not exceed sixteen (16) times the plate thickness or eight inches (8″) unless the completed repair is radiographed and stress–relieved.

(b) Cracks or patches in stayed surfaces may be welded provided:

(1) The crack or patch seam is located between two (2) rows of staybolts.

(2) The crack or patch seam if located in a flange or knuckle runs in a direction transverse to the flange or knuckle.

(3) The patch is set flush with adjacent plate and the welds are located between two (2) rows of staybolts.

(c) Cracks between tube holes in water–tube boiler drums or heads may be welded, provided there are not more than two (2) such cracks in any one row in any direction, nor more than a total of four (4) such cracks in any one drum or header and providing the diameter of the drum is not more than one percent (1%) out of round.

(d) Fire cracks extending from rivet hole to rivet hole in girth seams may be welded, provided there are not more than three (3) consecutive cracked ligaments nor more than a total of six (6) cracked ligaments in any one girth seam.

(e) Cracks between tube holes in fire–tube boilers not exceeding three (3) consecutive cracked ligaments may be welded.

(f) Cracks not to exceed two inches (2″) in length in wrought or cast steel (not cast iron) sectional headers of water–tube boilers may be welded except that not more than four (4) such cracks in any one header may be welded.

(g) Circumferential cracks in the knuckle or turn of a flange of a furnace or flue opening or adjacent to manhole opening of unstayed heads shall not be repaired by welding. When such cracks occur in an ogee flange, the affected material including the flange shall be removed and replaced by a flush patch of similar shape. The abutting edges shall be welded and the flange shall be riveted to the shell. Scotch marine and similar boilers shall have one (1) flange riveted to the shell or furnace and the other flange shall be attached by rivets or patch bolts.

(h) All welded patches installed in unstayed drums, shells or heads and exceeding the size of an unreinforced opening in paragraph PG–32 of the Code shall be flush–welded patches and shall be radiographed and post weld heat treated. The corner radius of such patches shall be rounded to a radius of at least twice the plate thickness. A joint efficiency of 90 percent (or more if allowed by the Code to which the boiler was built) shall be used in calculating the maximum allowable working pressure of such patches.

(i) Lap welded patches may be used to close openings in unstayed shells, drums, or heads providing:

(1) The maximum dimension of the opening does not exceed the size of an unreinforced opening in paragraph PG–32 of the Code.

(2) Two or more of such openings are not so located that they form a ligament in the longitudinal direction of the shell or drum.

(3) The patch plate is installed on the pressure side of the plate and has a lap of at least one inch (1″).

(4) The patch plate is not exposed to the products of combustion.

(j) Any portion of the tube sheet of a horizontal tubular boiler may be repaired by a flush welded patch providing:

(1) No welded repair shall be permitted in the knuckle in a circumferential direction.

(2) The patch shall be held in place by stays, tubes, or both.

(3) Where the patch extends to the outer row of tubes, it shall include the flanged portion of the head and be secured to the shell in the same manner as the original construction.

(k) The top tube sheet of a vertical tubular boiler may be replaced by a flush welded patch, provided the welded seam is not located nearer than one inch (1″) to the knuckle or curved part of the original head. The bottom tube sheet of a vertical tubular boiler shall not be so repaired.

(l) Pipe connections up to three-inch (3") pipe size may be installed by welding without stress-relieving, provided the coupling used has a flange on the pressure side of the sheet and the welding is for tightness only. This type of repair shall not be used for blowoff connections or openings exposed to the products of combustion.

(m) Post weld heat treatment of a repaired part by heating, when necessary, shall be done in accordance with paragraph PW-39 of the Code. Care should be exercised in applying heat in the vicinity of riveted joints to avoid loosening of rivets. Peening may be used in lieu of post weld heat treatment at the discretion of the Division.

(n) Radiography of welded repairs, when required, shall be done in accordance with paragraph PW-51 of the Code.

(o) The thickness of any patch shall be equal to but not more than one-eighth inch (1/8") thicker than the plate being patched.

(p) All flush welded patches in unstayed surfaces shall be butt-doubled-welded or equivalent. Patch material shall conform to the requirements of Order 794(g) and (h).

History

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 786. Preparation for Welding.

(a) All cracks permitted to be repaired by welding shall be chipped or ground to form a clean welding groove with an included angle of not less than sixty degrees (60) and extending to a depth equal to at least the plate thickness less one-sixteenth inch (1/16"). The welding groove shall be extended until the crack has been removed for its entire length. Whenever possible the root of the weld shall be chipped out to clean metal and welded.

(b) Prior to repairing cracks by welding, all tubes, rivets, and threaded staybolts within 6 inches of the crack shall be removed. After welding is completed, such tube, rivet and/or staybolt holes shall be reamed before installing new tubes, rivets, or staybolts. For threaded staybolts the holes shall be tapped and new threaded staybolts installed. If a crack originates or terminates at a welded staybolt, the staybolt shall be removed prior to repairing the crack. After welding is completed, the hole shall be properly prepared for installation of the new staybolt in accordance with paragraph PW-19 of the Code.

History

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 788. Repair of Corroded Surfaces.

The following corroded surfaces may be built up by fusion welding:

(a) Corroded surfaces in stayed sheets including tube sheets of fire-tube boilers, provided the remaining thickness is at least fifty percent (50%) of the original thickness and further provided the affected areas are not sufficiently extensive to seriously impair the safety of the object; the qualified inspector shall decide when such areas shall be repaired by other means.

(b) Corroded surfaces in plate around handholes or manholes in unstayed sheets within three inches (6") of the opening, provided the remaining thickness is not less than fifty percent (50%) of the original thickness.

(c) Calking edges of girth seams, provided the metal remaining between the rivet and calking edge to be built up is at least fifty percent (50%) of the original thickness and also provided the length of calking edge to be built up does not exceed a length equal to the diameter of the boiler. Before any welding is done, all rivets in the affected area and six inches (6") beyond each portion to be built up shall be removed. After the welded repair has been completed the rivet holes shall be reamed and new rivets driven.

(d) The building up or repair by welding of rivet heads, staybolts, braces, or attachments to braces, or grooved areas is not permitted.

(e) Scattered pits and corrosion in unstayed shells may be built up by welding, provided the largest dimension of such corroded area does not exceed the diameter of an unreinforced opening in paragraph PG-32 of the Code and providing such areas are not so located that they form a ligament in the longitudinal direction.

History

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 789. Permissible Repair by Seal Welding.

(a) The ends of all tubes, suspension tubes, and nipples of water-tube boilers and superheaters may be seal-welded in accordance with the provisions of paragraph PWT-11 of the Code.

(b) Seal-welding of circumferential joints is permissible, provided the seam is calked first and made tight under hydrostatic pressure equal to the working pressure.

(c) The ends of fire tubes may be seal-welded provided the thickness of the tube is at least seventy-five percent (75%) of its original thickness, and the tubes are first rolled and beaded and found tight under hydrostatic pressure at least equal to the working pressure. The throat of the weld shall not exceed three-sixteenths inch (3/16").

History

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 790. Permissible Tube Repair.

(a) All the tubes in a firetube boiler may be retipped, provided the tube wall thickness of the original tube is not less than ninety percent (90%) of the original thickness and the retipped ends are from new material. The new end shall be located in the tube sheet subject to the greatest heat. The circumferential welds in such tubes shall not exceed four (4) in number.

(b) Complete replacement of sections of tubes or pipe in water-tube boilers is permitted, providing the remaining tube is not less than the thickness required for the designed working pressure and the requirements of paragraph PW-41 of the Code are complied with.

(c) Bulges in tubes of water-tube boilers may be repaired when:

(1) The maximum dimension of the repaired area does not exceed the diameter of the tube or two inches (2") whichever is the least.

(2) There are not more than three (3) such repairs in any one (1) tube.

(3) The tube wall adjacent to the bulge is not less than the thickness required for the designed working pressure.

(4) The requirements of paragraph PW-41 of the Code are complied with.

History

1. Amendment filed 11-2-66; effective thirtieth day thereafter (Register 66, No. 38). Approved by State Building Standards Commission.

### § 793. Qualification of Welding Procedures and Operators.

No welded repair shall be made to any boiler or boiler appurtenance until the welding procedure and operator have been qualified in accordance with Section IX of the code in the overhead and horizontal positions. The certificate of competency number of the qualified inspector authorizing the repair shall be stamped adjacent to all welded repairs made to power boilers.

On welded repairs that are completely radiographed the operator qualification may be eliminated at the discretion of the division provided the welding procedure is properly qualified inspector indicates on his report the welding procedure used and the operator employed in making the repair.

### § 794. Riveted Patches.

(a) Riveted patch seams exposed to the products of combustion may be double-riveted or constructed similar to the original seams of the boiler.

(b) Patches exceeding twenty-four inches (24") in length shall have the proper width as determined by these orders. Patches exceeding fifteen inches (15") to and including twenty-four inches (24") in length shall be triangular, crescent, diamond, or oval in shape and width, W, in the circumferential direction, shall be at least twice the length, L, in the longitudinal direction. Patches fifteen inches (15") or less in longitudinal direction may be circular in shape.

(c) If it is found that a patch will extend extremely high, and also to avoid calking in sharp corners, it may be shortened in width to the extent that not more than four (4) rivets will be in a longitudinal line, as shown in Figure 2.

(d) If it is found that a patch will have to be sixty inches (60″) or more in length, consideration should be given to the use of a sheet having a width equivalent to five–eighths (5/8) of the circumference of the boiler, and the longitudinal seam shall be of a design similar to the design of the original seam of the boiler.

(e) In laying out new patches over twenty–four inches (24″) long, it is recommended that they be triangular or diamond in shape as may be required for the particular job; with definite straight–line sides but with corners properly rounded to permit adequate caulking, as illustrated in Figures 1, 2, 3, and 4. The length designated as "L" and the width designated as "W" are also shown in Figures 1, 2, 3, and 4.

(f) Rivets shall be used in "riveted" patch seams unless their use is difficult or impossible, in which case, patch bolts may be used. Rivet holes may be countersunk in patches on shells that have the heads supported by tubes or braces, providing the angle of the chamfer with the center line of the rivet hole does not exceed forty–five degrees (45°), and the depth does not exceed half the thickness of the plate.

(g) Patch material shall be of fire box or flange steel depending upon the plate it replaces. Tank steel shall not be used. The repair shop shall be required to produce a copy of the manufacturer's mill test report for the material to be used.

(h) The patch plate material shall contain the steelmaker's brand. If only a part of a plate is required and this part does not contain the brand, the brand shall be transferred to the patch plate in the presence of a qualified inspector or a representative of the plate manufacturer before the plate is cut. Replacement rivets, patch bolts, and staybolts shall be of material approved for new construction by the code.

(i) All patch plates except patch plates containing blowoff connections shall be placed inside of the boiler shell or drum if exposed to the products of combustion and if installed where there is a possibility that scale deposits may be pocketed. Patch plates containing blowoff connections shall be placed on the outside of the boiler shell.

### § 795. Installation of Riveted Patches.

(a) The following procedure shall be followed when installing riveted patches:

(1) Distorted sheets which require patching shall first be set back straight as nearly as possible before proceeding with the cutting out of the plate so that the patch may be kept as small as possible.

(2) All defective or deteriorated material shall be removed and properly trimmed to provide for caulking and neat workmanship in attaching the patch.

(3) The edges of a patch shall be beveled for calking by planing, chipping, or gas cutting before applying it to the boiler. Rivets should be driven by gun, if at all possible.

(4) All rivet holes shall be drilled full size or the holes may be punched not to exceed one–fourth inch (1/4″) less than full size for plates over five–sixteenths inch (5/16″), and one–eighth inch (1/8″) less than full size for plates five–sixteenths inch (5/16″) or less in thickness, and then reamed to full size with patch in place. Rivet holes shall be not more than one–sixteenth inch (1/16″) greater in diameter than the nominal diameter of the rivet.

(5) Seal welding of the patch plate is permissible if a single bead is used with a throat thickness not more than three–sixteenths inch (3/16″). The patch shall be tight under a hydrostatic test pressure equal to the operating pressure before seal welding. Rivets and patch bolts shall not be seal welded.

(6) When three (3) plates are lapped at the corners of a patch, the middle plate shall be scarfed carefully to a feather edge the entire width of the lap as shown in Figure 1.

(7) Upon the completion of repairs, a hydrostatic test of one hundred fifty percent (150%) of the maximum allowable operating pressure shall be applied. All seams shall be tight at this pressure.

### § 796. Riveted Patch Seam Calculations.

(a) Riveted patch seams are calculated as follows:

(1) Determine the length, L, of the patch from the area of the defect to be repaired (Figures 1, 2, 3, and 4). The normal efficiency, e, of the single–riveted seam that is to be used in the patch should then be determined from Table 1. This is governed by the thickness of plate and diameter of rivet holes.

Table 1
EFFICIENCIES OF SINGLE-RIVETED SEAMS

| *Plate Thickness, t* | *Rivet Hole Diameter, d* | *Pitch of Rivet, p* | *Efficiency of Seam, e* |
|---|---|---|---|
| 1/4 | 11/16 | 1 7/8 | 63.6 |
| 9/32 | 3/4 | 1 7/8 | 60.3 |
| 5/16 | 3/4 | 1 7/8 | 60.0 |
| 11/32 | 13/16 | 1 15/16 | 58.0 |
| 3/8 | 13/16 | 1 15/16 | 57.0 |
| 13/32 | 7/8 | 2 1/16 | 57.5 |
| 7/16 | 15/16 | 2 1/4 | 56.0 |
| 15/32 | 15/16 | 2 1/8 | 55.5 |
| 1/2 | 1 | 2 1/4 | 55.7 |
| 9/16 | 1 1/16 | 2 3/8 | 53.0 |
| 19/32 | 1 1/16 | 2 1/4 | 52.8 |
| 5/8 | 1 1/16 | 2 1/4 | 50.5 |
| 21/32 | 1 1/8 | 2 5/16 | 51.4 |
| 11/16 | 1 1/8 | 2 5/16 | 51.4 |

Tensile strength assumed at 55,000 psi and shearing strength at 44,000 psi.

After determining the length, L, of a patch, determine its width girthwise, W. This is found by multiplying the length by the constant, C, as shown in Table 2 or 3, depending upon the type of boiler to be repaired. These tables give a constant, C, for a given efficiency, e, of patch and efficiency, E, of the longitudinal seam.

(2) To determine the longitudinal efficiency of an existing patch, the length, L, and width, W, the pitch, P, and the diameter, d, of rivet, should be measured. "W" divided by "L" will give the constant, C. Table 1 will give "e." Then under "e" in Table 2 or 3, depending upon the type of boiler to be repaired, find the constant, C. Whatever "E" is in the first column is the longitudinal or allowed efficiency of the patch seam.

### § 797. Example of the Application and Explanation of Patch Tables and Charts.

(a) A patch is to be placed in the fire sheet of a horizontal return tubular boiler having a shell plate seven–sixteenths–inch (7/16″) thick, a longitudinal seam efficiency of seventy–four percent (74%), and a length of patch of thirty–six inches (36″). Find the width, W, of patch to be applied so that there will be no reduction in pressure, using a single–riveted seam of normal design.

Referring to Table 1, it is found that seven–sixteenths–inch (7/16″) plate with fifteen–sixteenths–inch (15/16″) diameter rivet holes, pitched two and one–fourth (2 1/4) gives a seam efficiency of fifty–six percent (56%).

Referring to Table 2, $E = 0.74$ and $e = 0.56$ gives a constant $C = 1.75$; then width $W = L \times C = 36 \times 1.75$ = sixty–three inches (63″).

(b) Pressure Allowed on an Existing Patch.

A crescent–shaped patch has already been installed on a horizontal–tubular boiler. It is thirty inches (30″) long and forty–eight inches (48″) wide. The seam is single riveted with thirteen–sixteenths–inch (13/16″) rivet holes pitched one and fifteen–sixteenths inches (1 15/16″). The boiler shell plate is three–eighths–inch (3/8″) thick. The longitudinal seam is of the double–riveted butt–strap type having an efficiency of eighty–two percent (82%). The safety valve is set for one hundred twenty–five pounds (125#) pressure. What maximum pressure should be allowed on the boiler? Reference to Table 1, shows that the normal efficiency of the patch seam is fifty–seven percent (57%). (If the efficiency is not found in the Table, refer to any other available table or determine it in the

manner described in paragraphs A–1, A–2 and A–3 of the Appendix of the A.S.M.E. Boiler Code.)

Divide the width of the patch, W = forty–eight inches (48″) by the length, $L$ = thirty inches (30″) to find the constant, $C = 48/30 = 1.60$. Follow down column 0.57 of Table 2 until 1.60 is found. It will be noted that this is somewhere between 1.56 and 1.62 representing E somewhere between 0.72 and 0.73. As the difference between 1.56 and 1.62 is 6, and the difference between 1.56 and 1.60 is 4, $E$ will be 0.72 plus 4/6 of 0.01 which is 0.7266.

The maximum allowable working pressure varies directly as the seam efficiency. Accordingly, $P = (0.7266/0.82) \times 125 = 110\#$. If this pressure allowance interferes with the operation of the plant, the patch shall be replaced by a new one with the proper dimensions giving a diagonal efficiency of eighty–two percent (82%).

(c) Design of Patch for Water–tube Boiler.

Reference to Table 1 shows that a single–riveted lap seam with seven–sixteenths–inch (7/16″) plate, fifteen–sixteenths–inch (15/16″) diameter rivet holes, and two–and–one–half–inch (2 1/2″) pitch has a normal efficiency of fifty–six percent (56%).

Reference to Table 3, shows $E = 0.82$ and e = 0.56, the constant C is 3.16.

Then width $W = C \times 1 \div 2$.

W = 3.16 x 36 ÷ 2 = 56.88 or practically fifty–seven inches (57″).

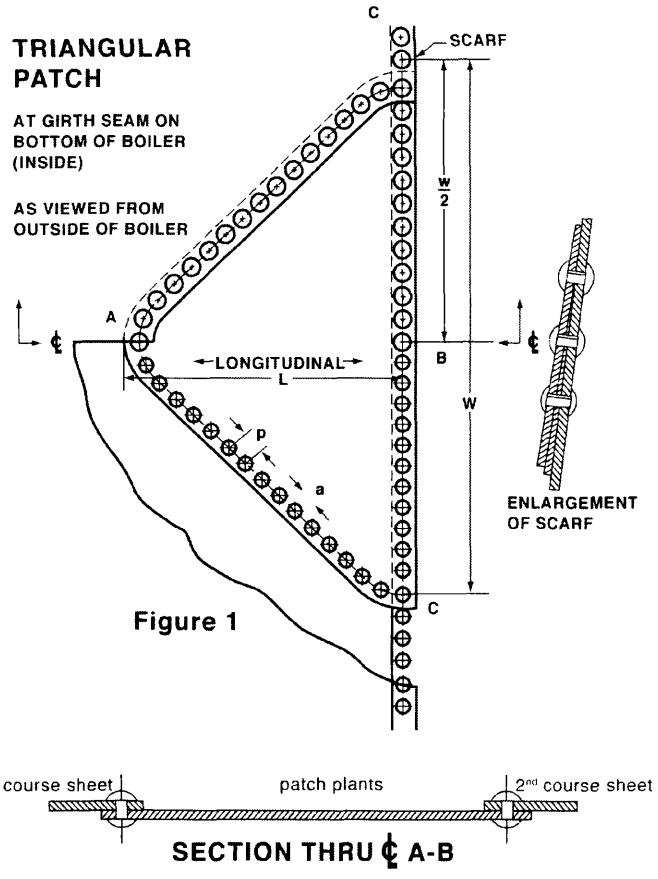



Figure 1

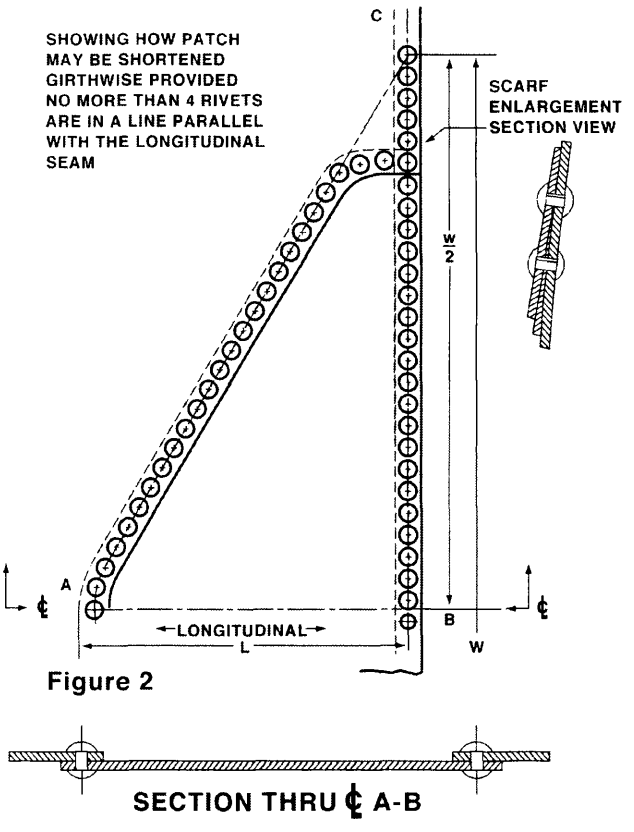



Figure 2

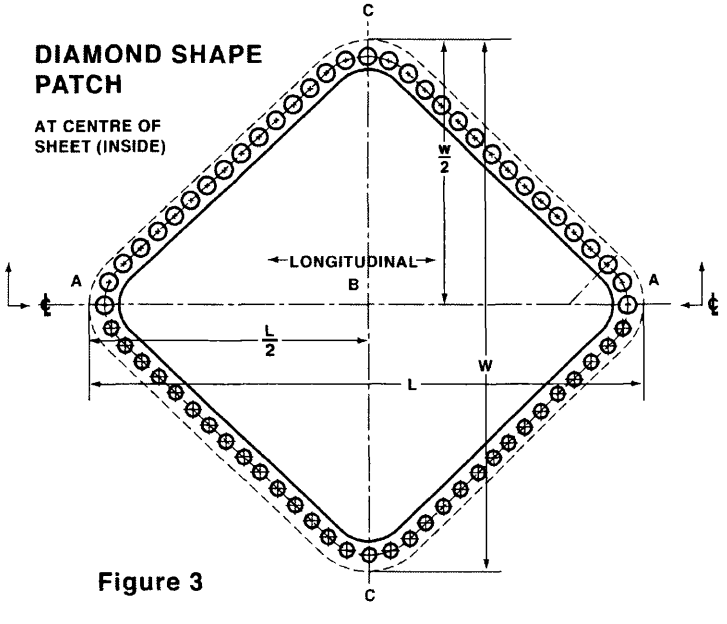



Figure 3

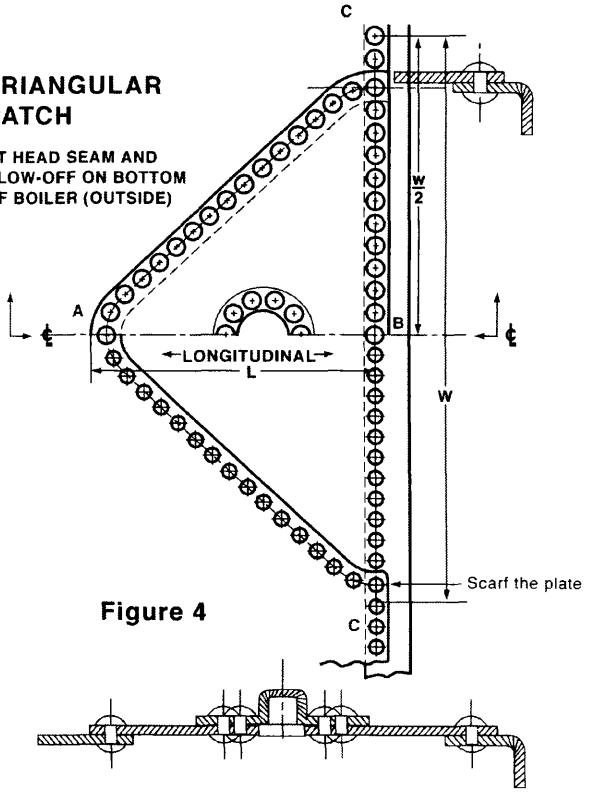



Figure 4

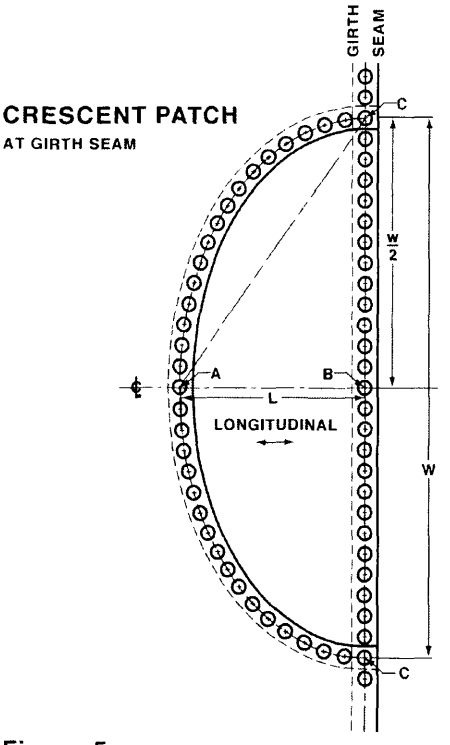



Figure 5

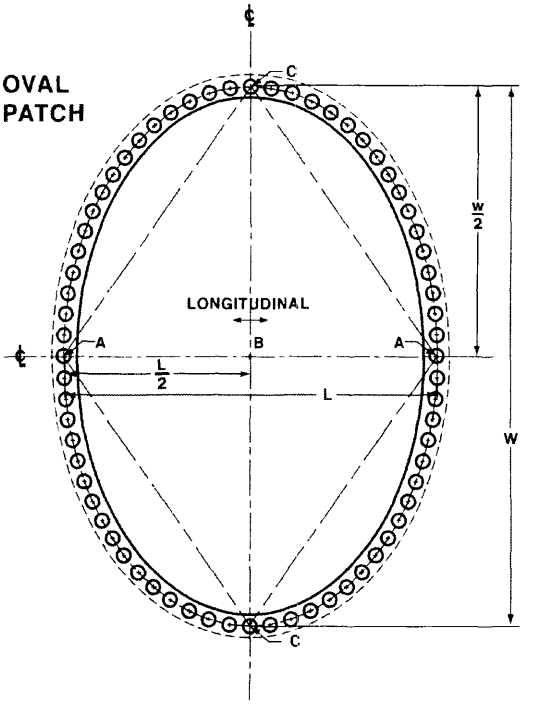



Figure 6

CONSTANT "C"
TABLE F-1 HEADS SUPPORTED

TRIANGLE OR CRESCENT SHAPE PATCHES
DIAMOND OR OVAL SHAPE PATCHES

$C = W \div L$ $W = C \times L$ $L = W \div C$
$C = 2W \div L$ $W = C \times L \div 2$ $L = 2W \div C$

"e" EFFICIENCY OF PATCH SEAMS

Efficiency of longitudinal seams or diagonal efficiency

| "F" | .50 | .51 | .52 | .53 | .54 | .55 | .56 | .57 | .58 | .59 | .60 | .61 | .62 | .63 | .64 | .65 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| .65 | 1.68 | 1.60 | 1.51 | 1.43 | 1.36 | 1.28 | 1.20 | 1.13 | — | — | — | — | — | — | — | — |
| .66 | 1.75 | 1.67 | 1.58 | 1.50 | 1.42 | 1.35 | 1.27 | 1.19 | — | — | — | — | — | — | — | — |
| .67 | 1.82 | 1.73 | 1.65 | 1.57 | 1.49 | 1.41 | 1.33 | 1.26 | 1.18 | — | — | — | — | — | — | — |
| .68 | 1.88 | 1.79 | 1.70 | 1.63 | 1.55 | 1.47 | 1.40 | 1.32 | 1.24 | 1.16 | — | — | — | — | — | — |
| .69 | 1.94 | 1.86 | 1.77 | 1.69 | 1.61 | 1.53 | 1.45 | 1.38 | 1.30 | 1.23 | 1.15 | — | — | — | — | — |
| .70 | 2.01 | 1.91 | 1.83 | 1.75 | 1.67 | 1.59 | 1.52 | 1.44 | 1.36 | 1.30 | 1.22 | 1.15 | — | — | — | — |
| .71 | 2.06 | 1.97 | 1.89 | 1.81 | 1.73 | 1.65 | 1.57 | 1.50 | 1.43 | 1.35 | 1.28 | 1.21 | 1.15 | — | — | — |
| .72 | 2.12 | 2.03 | 1.95 | 1.86 | 1.79 | 1.71 | 1.63 | 1.56 | 1.48 | 1.41 | 1.34 | 1.27 | 1.20 | 1.14 | — | — |
| .73 | 2.17 | 2.09 | 2.00 | 1.93 | 1.85 | 1.77 | 1.69 | 1.62 | 1.54 | 1.47 | 1.40 | 1.33 | 1.26 | 1.19 | 1.13 | — |
| .74 | 2.22 | 2.14 | 2.06 | 1.98 | 1.91 | 1.83 | 1.75 | 1.67 | 1.60 | 1.52 | 1.45 | 1.39 | 1.32 | 1.25 | 1.18 | — |
| .75 | 2.28 | 2.20 | 2.12 | 2.04 | 1.96 | 1.88 | 1.81 | 1.73 | 1.66 | 1.58 | 1.51 | 1.44 | 1.37 | 1.31 | 1.24 | 1.17 |
| .76 | 2.34 | 2.25 | 2.17 | 2.09 | 2.02 | 1.93 | 1.86 | 1.79 | 1.71 | 1.64 | 1.57 | 1.50 | 1.43 | 1.36 | 1.30 | 1.23 |
| .77 | 2.39 | 2.31 | 2.22 | 2.15 | 2.07 | 2.00 | 1.92 | 1.84 | 1.76 | 1.69 | 1.62 | 1.55 | 1.48 | 1.42 | 1.35 | 1.29 |
| .78 | 2.44 | 2.36 | 2.28 | 2.20 | 2.13 | 2.05 | 1.97 | 1.89 | 1.82 | 1.75 | 1.67 | 1.61 | 1.54 | 1.47 | 1.41 | 1.35 |
| .79 | 2.50 | 2.42 | 2.33 | 2.25 | 2.18 | 2.10 | 2.03 | 1.95 | 1.87 | 1.81 | 1.73 | 1.66 | 1.59 | 1.52 | 1.46 | 1.40 |
| .80 | 2.55 | 2.46 | 2.39 | 2.30 | 2.23 | 2.15 | 2.08 | 2.00 | 1.93 | 1.86 | 1.79 | 1.72 | 1.64 | 1.58 | 1.48 | 1.45 |
| .81 | 2.60 | 2.51 | 2.43 | 2.36 | 2.28 | 2.20 | 2.13 | 2.05 | 1.98 | 1.91 | 1.84 | 1.77 | 1.69 | 1.63 | 1.57 | 1.50 |
| .82 | 2.65 | 2.56 | 2.48 | 2.40 | 2.33 | 2.25 | 2.18 | 2.11 | 2.03 | 1.97 | 1.89 | 1.82 | 1.75 | 1.68 | 1.62 | 1.55 |
| .83 | 2.70 | 2.62 | 2.53 | 2.45 | 2.38 | 2.30 | 2.22 | 2.15 | 2.08 | 2.01 | 1.94 | 1.87 | 1.80 | 1.73 | 1.67 | 1.60 |
| .84 | 2.75 | 2.66 | 2.59 | 2.51 | 2.43 | 2.35 | 2.27 | 2.20 | 2.13 | 2.06 | 1.99 | 1.92 | 1.85 | 1.78 | 1.72 | 1.65 |
| .85 | 2.80 | 2.71 | 2.63 | 2.56 | 2.48 | 2.40 | 2.32 | 2.25 | 2.18 | 2.11 | 2.04 | 1.97 | 1.90 | 1.84 | 1.77 | 1.70 |
| .86 | 2.85 | 2.77 | 2.68 | 2.60 | 2.52 | 2.45 | 2.37 | 2.30 | 2.23 | 2.16 | 2.09 | 2.02 | 1.95 | 1.89 | 1.82 | 1.75 |
| .87 | 2.90 | 2.82 | 2.74 | 2.65 | 2.57 | 2.49 | 2.42 | 2.34 | 2.28 | 2.21 | 2.14 | 2.07 | 2.00 | 1.93 | 1.87 | 1.81 |
| .88 | 2.96 | 2.87 | 2.78 | 2.71 | 2.62 | 2.54 | 2.47 | 2.40 | 2.32 | 2.25 | 2.19 | 2.12 | 2.05 | 1.98 | 1.92 | 1.85 |
| .89 | 3.01 | 2.92 | 2.83 | 2.75 | 2.68 | 2.59 | 2.52 | 2.44 | 2.37 | 2.30 | 2.23 | 2.16 | 2.10 | 2.03 | 1.96 | 1.90 |
| .90 | — | 2.97 | 2.89 | 2.80 | 2.71 | 2.65 | 2.57 | 2.50 | 2.42 | 2.34 | 2.27 | 2.21 | 2.14 | 2.08 | 2.01 | 1.95 |
| .91 | — | — | 2.94 | 2.86 | 2.77 | 2.69 | 2.62 | 2.54 | 2.47 | 2.39 | 2.32 | 2.25 | 2.19 | 2.12 | 2.06 | 2.00 |
| .92 | — | — | 2.99 | 2.90 | 2.82 | 2.74 | 2.66 | 2.59 | 2.51 | 2.44 | 2.36 | 2.30 | 2.23 | 2.17 | 2.10 | 2.04 |
| .93 | — | — | — | 2.95 | 2.87 | 2.78 | 2.70 | 2.63 | 2.56 | 2.48 | 2.42 | 2.34 | 2.28 | 2.21 | 2.15 | 2.08 |
| .94 | — | — | — | — | 2.91 | 2.83 | 2.75 | 2.67 | 2.60 | 2.53 | 2.45 | 2.39 | 2.32 | 2.25 | 2.19 | 2.13 |
| .95 | — | — | — | — | — | 2.87 | 2.79 | 2.72 | 2.64 | 2.57 | 2.50 | 2.43 | 2.36 | 2.29 | 2.23 | 2.17 |

CONSTANT "C" TRIANGLE OR CRESCENT SHAPE PATCHES $C = W \div L$ $W = C \times L$ $L = W \div C$
TABLE F-2 HEADS UNSUPPORTED DIAMOND OR OVAL SHAPE PATCHES $C = 2W \div L$ $W = C \times L + 2$ $L = 2W + C$

"e" EFFICIENCY OF PATCH SEAMS

| | | .50 | .51 | .52 | .53 | .54 | .55 | .56 | .57 | .58 | .59 | .60 | .61 | .62 | .63 | .64 | .65 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| "E" | .65 | 2.20 | 2.06 | 1.93 | 1.80 | 1.69 | 1.56 | 1.45 | 1.35 | 1.24 | 1.14 | — | — | — | — | — | — |
| | .66 | 2.30 | 2.16 | 2.03 | 1.90 | 1.78 | 1.66 | 1.55 | 1.45 | 1.34 | 1.22 | 1.12 | — | — | — | — | — |
| | .67 | 2.40 | 2.26 | 2.13 | 2.00 | 1.88 | 1.75 | 1.64 | 1.52 | 1.43 | 1.32 | 1.21 | — | — | — | — | — |
| | .68 | 2.50 | 2.36 | 2.23 | 2.10 | 1.98 | 1.86 | 1.73 | 1.63 | 1.52 | 1.42 | 1.31 | 1.19 | — | — | — | — |
| | .69 | 2.62 | 2.46 | 2.33 | 2.20 | 2.07 | 1.95 | 1.84 | 1.71 | 1.61 | 1.50 | 1.40 | 1.30 | 1.17 | — | — | — |
| | .70 | 2.75 | 2.57 | 2.43 | 2.30 | 2.16 | 2.04 | 1.93 | 1.80 | 1.69 | 1.59 | 1.49 | 1.37 | 1.28 | 1.16 | — | — |
| | .71 | 2.87 | 2.70 | 2.53 | 2.40 | 2.26 | 2.14 | 2.02 | 1.90 | 1.79 | 1.67 | 1.57 | 1.47 | 1.37 | 1.26 | 1.15 | — |
| | .72 | 3.00 | 2.81 | 2.65 | 2.48 | 2.36 | 2.23 | 2.11 | 1.99 | 1.88 | 1.78 | 1.66 | 1.56 | 1.45 | 1.36 | 1.26 | 1.14 |
| | .73 | 3.14 | 2.93 | 2.76 | 2.60 | 2.46 | 2.33 | 2.20 | 2.09 | 1.97 | 1.87 | 1.75 | 1.64 | 1.54 | 1.44 | 1.35 | 1.24 |
| | .74 | 3.28 | 3.07 | 2.87 | 2.71 | 2.56 | 2.42 | 2.30 | 2.19 | 2.06 | 1.93 | 1.83 | 1.73 | 1.62 | 1.52 | 1.43 | 1.34 |
| | .75 | 3.38 | 3.19 | 3.00 | 2.83 | 2.66 | 2.52 | 2.40 | 2.27 | 2.15 | 2.05 | 1.92 | 1.81 | 1.71 | 1.61 | 1.51 | 1.42 |
| | .76 | 3.52 | 3.32 | 3.14 | 2.96 | 2.78 | 2.62 | 2.49 | 2.36 | 2.24 | 2.12 | 2.01 | 1.90 | 1.79 | 1.69 | 1.60 | 1.50 |
| | .77 | — | 3.46 | 3.28 | 3.07 | 2.90 | 2.74 | 2.58 | 2.45 | 2.32 | 2.22 | 2.10 | 1.98 | 1.88 | 1.77 | 1.67 | 1.58 |
| | .78 | — | — | 3.40 | 3.19 | 3.03 | 2.85 | 2.69 | 2.55 | 2.42 | 2.30 | 2.19 | 2.07 | 1.96 | 1.86 | 1.75 | 1.66 |
| | .79 | — | — | — | 3.32 | 3.16 | 2.97 | 2.80 | 2.65 | 2.51 | 2.39 | 2.27 | 2.16 | 2.05 | 2.94 | 1.84 | 1.74 |
| | .80 | — | — | — | 3.46 | 3.28 | 3.10 | 2.92 | 2.75 | 2.61 | 2.48 | 2.36 | 2.24 | 2.14 | 2.03 | 1.92 | 1.83 |
| | .81 | — | — | — | — | 3.40 | 3.20 | 3.03 | 2.87 | 2.71 | 2.57 | 2.45 | 2.33 | 2.21 | 2.11 | 2.00 | 1.90 |
| | .82 | — | — | — | — | — | 3.34 | 3.16 | 2.97 | 2.82 | 2.67 | 2.53 | 2.42 | 2.30 | 2.19 | 2.09 | 1.98 |
| | .83 | — | — | — | — | — | 3.46 | 3.29 | 3.10 | 2.93 | 2.78 | 2.63 | 2.50 | 2.39 | 2.27 | 2.17 | 2.06 |
| | .84 | — | — | — | — | — | — | 3.39 | 3.22 | 3.05 | 2.87 | 2.75 | 2.59 | 2.47 | 2.37 | 2.25 | 2.15 |
| | .85 | — | — | — | — | — | — | — | 3.32 | 3.17 | 2.99 | 2.83 | 2.69 | 2.55 | 2.44 | 2.34 | 2.23 |
| | .86 | — | — | — | — | — | — | — | 3.45 | 3.29 | 3.13 | 2.96 | 2.78 | 2.65 | 2.54 | 2.42 | 2.32 |
| | .87 | — | — | — | — | — | — | — | — | 3.40 | 3.24 | 3.07 | 2.90 | 2.76 | 2.62 | 2.50 | 2.40 |
| | .88 | — | — | — | — | — | — | — | — | — | 3.32 | 3.17 | 3.00 | 2.86 | 2.71 | 2.59 | 2.47 |
| | .89 | — | — | — | — | — | — | — | — | — | 3.46 | 3.29 | 3.14 | 2.97 | 2.81 | 2.68 | 2.56 |
| | .90 | — | — | — | — | — | — | — | — | — | — | 3.40 | 3.24 | 3.07 | 2.93 | 2.78 | 2.65 |
| | .91 | — | — | — | — | — | — | — | — | — | — | — | 3.35 | 3.19 | 3.03 | 2.87 | 2.75 |
| | .92 | — | — | — | — | — | — | — | — | — | — | — | 3.45 | 3.29 | 3.14 | 2.97 | 2.83 |
| | .93 | — | — | — | — | — | — | — | — | — | — | — | — | 3.39 | 3.24 | 3.09 | 2.93 |
| | .94 | — | — | — | — | — | — | — | — | — | — | — | — | — | 3.32 | 3.19 | 3.03 |
| | .95 | — | — | — | — | — | — | — | — | — | — | — | — | — | 3.43 | 3.28 | 3.14 |

Efficiency of longitudinal seams or diagonal efficiency

HISTORY

1. Repealer and new subsections (a) and (b) filed 8–12–76; effective thirtieth day thereafter (Register 76, No. 33).
2. Change without regulatory effect repealing and adopting new Figures 1–6 within subsection (b) filed 5–19–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 21).

## Appendix 1

3228. (i)[1] Boiler, Furnace and Incinerator Rooms.

Any room containing a boiler, furnace, incinerator, or other fuel–fired equipment must be provided with two means of egress when both of the following conditions exist:

(1) The area of the room exceeds 500 square feet, or

(2) The largest single piece of fuel–fired equipment exceeds 1,000,000 B.t.u. per hour input capacity.

Exception: Rooms housing high–pressure boilers (greater than 15 lbs. psi) where either of the conditions listed in (1) or (2) exist shall be provided with 2 exits.

If two means of egress must be provided, one may be a fixed ladder. The means of egress must be separated by a horizontal distance not less than half the greatest horizontal dimension of the room. All openings shall be protected with a self–closing fire assembly having a minimum one–hour fire–protection rating. Where oil–fired boilers are used, a 6–inch noncombustible sill (dike) shall be provided. There shall be no interior openings between any occupancy where flammable or explosive concentrations may be expected to accumulate.

[1] Reprint of General Industry Safety Order, Section 3228(i), Exits, Boiler, Furnace and Incinerator Rooms, of the California Administrative Code, Title 8, Subchapter 7 (Register 72, No. 23).

3274.[2] Valves and Controls.

(a) Where pipe valves require daily manipulation and are so located that they cannot be reached or operated from the floor, a permanent platform or other safe means of operation shall be provided.

(b) Valves or other controls shall not be so located that their manipulation exposes the employee to hazards of dangerous moving parts of prime movers, machines, or transmission equipment. (Title 24, T8–3274)

[2] Reprint of General Industry Safety Order, Section 3274, Valves and Controls, of the California Administrative Code, Title 8, Subchapter 7 (Register 76, No. 29).

3311.[3] Flarebacks.

(a) To provide greater safety in lighting and relighting fixed fired equipment, the employer shall designate one or more employees who shall be trained in the safe lighting and relighting of the equipment. It shall be the responsibility of the employer to limit lighting and relighting of the equipment to employees so designated. It shall be the responsibility of the employees to follow the instructions given them. Copies of the instructions shall be prominently displayed at a location near the equipment.

(b) In addition to the above fire boxes or combustion chambers shall be purged or allowed sufficient time to vent themselves before a source of ignition is introduced into them.

(c) Provision shall be made, for the furnishing of extension lighting rods, where their use is indicated. Valves and other controls shall be so located as to avoid placing the employee in an unsafe position if a flareback occurs.

[3] Reprint of General Industry Safety Order, Section 3311, Flarebacks, of the California Administrative Code, Title 8, Subchapter 7 (Register 72, No. 23).

3312.[4] Entering Combustion Chambers, Flues, Boilers or Unfired Steam Pressure Vessels.

(a) Before employees are allowed to enter, through a manhole, the shell or drum of a steam boiler or an unfired steam pressure vessel for maintenance or repair, where such a boiler or pressure vessel is one of a battery of two or more boilers or vessels or is connected to another source of steam, the valves connecting to the steam header or other source of steam shall be closed and effectively blinded or two valves shall be installed with a bleeder between them and the valves shall be closed and bleeder open. Blow down valves and other valves on lines through which harmful material might accidentally flow back to the boiler or vessel shall be either sealed or closed and locked and the key retained by the em-

ployee or his supervisor while the employee is in the boiler or vessel. When lines are effectively blinded the valves need not be locked or sealed.

(b) Employees shall not enter or be required to enter the fire boxes, flues or combustion chambers of fired apparatus until:

(1) The pilot light, fuel and steam lines to burners entering the fire box or combustion chamber have been blinded, disconnected or effectively closed by the use of two block valves with an open bleeder between them.

(2) All probability of ignition of any solid combustibles in the fire box or combustion chamber has been removed.

---

[4] Reprint of General Industry Safety Order, Section 3312, Entering Combustion Chambers, Flues, Boilers or Unfired Steam Pressure Vessels, of the California Administrative Code, Title 8, Subchapter 7 (Register 72, No. 23).

3310.[5] Discharge Location.

(a) The discharge opening from traps, drains, and blowoffs shall be located so as not to endanger the safety of employees.

---

[5] Reprint of General Industry Safety Order, Section 3310(a), Discharge Location (Register 72, No. 23).

3514.[6] Tubular Gage Guard.

(a) Tubular water gages on portable steam boilers shall be protected with a substantial guard affording protection at least equivalent to that obtained by an enclosure of one–half (1/2) inch wire mesh of No. 18 U.S.S. gage.

(b)(NI) Every portable steam boiler shall be equipped with liquid level gages of the reflex type.

---

[6] Reprint of General Industry Safety Order, Section 3514, Tubular Gage Guard (Register 72, No. 23).

3515.[7] Try Cock Discharge Receptacle.

Where discharge presents hazards to employees, try cocks shall discharge into a funnel, dripper, or other similar receptacle, which in turn shall be piped to a safe place of discharge.

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[7] Reprint of General Industry Safety Order, Section 3515, Try Cock Discharge Receptacle (Register 72, No. 23).

3516.[8] Try Cock Manipulation.

Provisions shall be made whereby each of the try cocks can be manipulated by the employee while standing on the floor or platform on which the boiler is mounted.

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[8] Reprint of General Industry Safety Order, Section 3516, Try Cock Manipulation (Register 72, No. 23).

3517.[9] Steam Gage and Water Gage Glass Location.

The steam gage and water gage glasses shall be so located on the boiler that they can be clearly seen by the operator.

---

[9] Reprint of General Industry Safety Order, Section 3517, Steam Gage and Water Gage Glass Location (Register 72, No. 23)

HISTORY

1. New Appendix 1 (Sections 3228, 3274, 3311, 3312, 3310, 3514, 3515, 3516 and 3517) filed 12–14–76; effective thirtieth day thereafter (Register 76, No. 51).

## Appendix 2

### Boiler and Fired Pressure Vessel Inspection Fees

NOTE: The following fee schedule adopted by the Division of Industrial Safety is reprinted from Chapter 3.2, Group 2, Title 8, California Administrative Code, solely for informational purposes. Should any discrepancy exist between this reprinting and the regulations of Chapter 3.2, then Chapter 3.2 will prevail.

344.3.[1] Boiler Shop Inspection Fees.

(a) Fees shall be charged for shop inspections made by qualified safety engineers of the Division as follows:

(1) Boilers and fired pressure vessels inspected in the fabricator's shop at $20.00 per hour.

(2) Boilers and fired pressure vessels inspected at the jobsite during erection at $60.00 each or $20.00 per hour whichever is greater, with a minimum charge of $20.00 per visit to the jobsite.

(b) Whenever a manufacturer or user of any apparatus or equipment fails to pay the fees required by this section within 60 days after notification, said manufacturer or user shall pay, in addition to the fees required by this section, a penalty fee equal to 100 percent of such fee. For the purposes of this section, the date of the invoice shall be considered the date of notification.

---

[1] Reprint from Chapter 3.2, Group 2, Title 8 (Register 77, No. 49).

344.4.[2] Boiler Permit and Inspection Fees.

(a) Fees shall be charged for field inspections made by qualified safety engineers of the Division as follows:

(1) Miniature Boilers:
Internal Inspection at $20.00
External Inspection at $20.00

(2) Firetube Boilers not exceeding 48 inches in diameter:
Internal Inspection at $30.00
External Inspection at $20.00

(3) Firetube Boilers exceeding 48 inches in diameter:
Internal Inspection at $50.00
External Inspection at $25.00

(4) Watertube Boilers not exceeding 500 square feet of heating surface:
Internal Inspection at $30.00
External Inspection at $20.00

(5) Watertube Boilers exceeding 500 square feet of heating surface to and including 2500 square feet of heating surface:
Internal Inspection of $50.00
External Inspection of $25.00

(6) Watertube Boilers exceeding 2500 square feet of heating surface:
Internal Inspection at $60.00
External Inspection at $30.00

(7) Boilers other than firetube, watertube or miniature:
Internal Inspection at $20.00 per hour with $20.00 minimum per boiler
External Inspection at $20.00

(8) Resale or repair inspection of all boilers and pressure vessels at $20.00 per hour:
Minimum charge per boiler is at $20.00

(b) Whenever an owner or user of any apparatus or equipment fails to pay the fees required under this section within 60 days after notification, said owner or user shall pay, in addition to the fees required under this section a penalty fee equal to 100 percent of such fee. For the purposes of this section, the date of the invoice shall be considered the date of notification.

HISTORY

1. New Appendix 2 filed 3–28–78; effective thirtieth day thereafter (Register 78, No. 13).

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[2] Reprint from Chapter 3.2, Group 2, Title 8 (Register 77, No. 49).

* * *

*Barclays Official*

# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

### Chapter 4. Division of Industrial Safety

#### Subchapter 3. Compressed Air Safety Orders

Vol. 8

THOMSON
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# Subchapter 3. Compressed Air Safety Orders

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# Subchapter 3. Compressed Air Safety Orders (Governing Work in Compressed Air)

## Article 1. Application

### § 1200. Application of Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amended Subchapter 3 (Sections 1200–1202, 1204, 1205, 1210, 1215–1217, 1220, 1225, 1230, 1240, 1250, 1270, 1280 and Appendices A and B) filed 7–18–66; effective thirtieth day thereafter (Register 66, No. 23). For former Subchapter 3, see Registers 3 and 55, No. 13.
2. Amendment filed 7–6–79 as procedural and organizational; effective upon filing (Register 79, No. 27).
3. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
4. Repealer of subchapter 3 (articles 1–12, sections 1200–1280), article 1 (section 1200) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

### § 1201. Permits for Variation from These Orders.

HISTORY

1. Repealer filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).

### § 1202. Posting of Application.

HISTORY

1. Repealer filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).

## Article 2. Definitions

### § 1204. Definitions.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer of article 2 (section 1204) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 3. General Provisions

### § 1205. General Provisions.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Amendment of subsection (b) filed 11–1–99; operative 12–1–99 (Register 99, No. 45).
3. Repealer of article 3 (section 1205) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 4. Compression

### § 1210. Compression Rate.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Amendment designating first paragraph as subsection (a) and new subsection (b) filed 11–1–99; operative 12–1–99 (Register 99, No. 45).
3. Repealer of article 4 (section 1210) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 5. Decompression

### § 1215. Normal Condition.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 8, No. 32).
2. Repealer of article 5 (sections 1215–1217) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

### § 1216. Repetitive Exposures.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

### § 1217. Decanting.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 6. Air Locks and Special Decompression Chamber

### § 1220. Air Locks.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Amendment of subsections (c) and (g) and new subsection (p) filed 11–1–99; operative 12–1–99 (Register 99, No. 45).
3. Repealer of article 6 (sections 1220–1225) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

### § 1225. Special Decompression Chamber.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 7. Temperature, Illumination, Sanitation and Ventilation

### § 1230. Temperature, Illumination, Sanitation and Ventilation.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Amendment of subsections (b) and (d) and new subsections (g) and (h) filed 11–1–99; operative 12–1–99 (Register 99, No. 45).
3. Change without regulatory effect amending subsection (e) filed 12–30–99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 53).
4. Repealer of article 7 (section 1230) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 8. Compressor Plant, Air Supply, and Telephone Communication

### § 1240. Compressor Plant, Air Supply and Telephone Communication.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer of article 8 (section 1240) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 9. Bulkheads and Screens

### § 1250. Bulkheads and Screens.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer of article 9 (section 1250) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 10. Fire Prevention

### § 1270. Fire Prevention.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer of article 10 (section 1270) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 11. Medical Attendance, Examination, and Regulations

### § 1280. Medical Control.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer of article 11 (section 1280) and section filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

## Article 12. Suggestions for the Guidance of Compressed Air Workers

HISTORY

1. Repealer of Article 12 filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).

### Appendix A

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of Appendix A filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer of article 12 (Appendices A and B) and Appendix A filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14). For prior history of article 12, see Register 85, No. 32).

### Appendix B

HISTORY

1. Amendment of Appendix B filed 8–7–85; effective thirtieth day thereafter (Register 85, No. 32).
2. Repealer of Appendix B filed 4–4–2006; operative 5–4–2006 (Register 2006, No. 14).

* * *

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# CALIFORNIA CODE OF REGULATIONS

# Title 8. Industrial Relations

## Division 1. Department of Industrial Relations

### Chapter 4. Division of Industrial Safety

#### Subchapter 4. Construction Safety Orders

Vol. 8

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# Subchapter 4. Construction Safety Orders

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# Subchapter 4. Construction Safety Orders

(Originally Printed 4–20–45)

## Article 1. Introduction

### § 1500. Title.

NOTE: Authority cited: Sections 142.3, 6312, 6500 and 6502, Labor Code.

HISTORY

1. Construction Safety Orders (§§ 1501 through 1756) originally printed 4–20–45 (Title 8).
2. Repealer and New Construction Safety Orders (Subchapter 4, §§ 1500 through 1733) filed 8–29–57; effective thirtieth day thereafter (Register 57, No. 14). (For prior amendments, see Registers 3, 5, 9, and 14, No. 8).
3. Repealer of Subchapter 4 and new Subchapter 4 (§§ 1500 through 1768) filed 7–9–65; effective thirtieth day thereafter (Register 65, No. 12).
4. Repealer of and new Introduction to Article 1 filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
5. Repealer of Preamble to Article 1 and Section 1500 filed 8–13–84; effective thirtieth day thereafter (Register 84, No. 33).

### § 1501. Superseded Orders.

HISTORY

1. Repealer filed 8–13–84; effective thirtieth day thereafter (Register 84, No. 33).

### § 1502. Application.

(a) These Orders establish minimum safety standards whenever employment exists in connection with the construction, alteration, painting, repairing, construction maintenance, renovation, removal, or wrecking of any fixed structure or its parts. These Orders also apply to all excavations not covered by other safety orders for a specific industry or operation.

(b) At construction projects, these Orders take precedence over any other general orders that are inconsistent with them, except for Tunnel Safety Orders or Compressed Air Safety Orders.

(c) Machines, equipment, processes, and operations not specifically covered by these Orders shall be governed by other applicable general Safety Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 7–6–79 as procedural and organizational; effective upon filing (Register 79, No. 27).
2. Amendment of subsection (a) filed 8–13–84; effective thirtieth day thereafter (Register 84, No. 33).

### § 1502.1. OSHA Standards.

HISTORY

1. New section filed 2–14–73; effective thirtieth day thereafter (Register 73, No. 7).
2. Repealer filed 8–13–84; effective thirtieth day thereafter (Register 84, No. 33).

### § 1503. Permits for Excavations, Trenches, Construction, (Building Structure, Scaffolding or Falsework), and Demolition.

NOTE: Permit requirements of the Division of Occupational Safety and Health are contained in Chapter 3.2, Group 2, Title 8, CAC.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 4–30–75 as an emergency; effective upon filing (Register 75, No. 18). For history of former section, see Register 75, No. 8.
2. Certificate of Compliance filed 6–20–75 (Register 75, No. 25).
3. Repealer and new section filed 5–12–83; effective thirtieth day thereafter (Register 83, No. 20).

## Article 2. Definitions

### § 1504. Definitions.

(a) The following definitions shall apply in the application of these Orders.

Access. A means of reaching a workspace or a work area.

Accessible. Within reach from a workspace or work area.

Adequate Ventilation. Ventilation which, under normal operating conditions, is sufficient to keep the concentration of a hazardous gas, vapor, mist, fume or dust below the amount which will produce harmful effects or below 20 percent of the lower explosive limit, whichever is lower.

Anchorage. A secure point of attachment for lifelines, lanyards or deceleration devices.

Approved. See section 1505.

Body Belt. A simple or compound strap with means for securing it about the waist and for securing a lanyard to it.

Body Harness. Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

Buckle. Any device for holding the body belt or body harness closed around the employee's body.

Bulldozer. A tractor having a blade in front for moving earth or other materials.

Bull Float. A tool used to spread out and smooth a concrete surface.

Carryall. A self–loading and unloading vehicle pulled by a tractor or powered attachment, and used for movement and placing of earth or other materials.

Closed Container. A container as herein defined, so sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures.

Combustible Liquid. A liquid having a flash point at or above 100°F (37.8 degrees C). Combustible liquids shall be subdivided as follows:

(A) Class II liquids shall include those having flash points at or above 100° F (37.8°C) and below 140°F (60°C).

(B) Class IIIA liquids shall include those having flash points at or above 140°F (60°C) and below 200°F (93.4°5C).

(C) Class IIIB liquids shall include those having flash points at or above 200°F (93.4°C).

Competent Person. One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Connector. A device which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabiner, or it may be an integral component of part of the system (such as a buckle or dee–ring sewn into a body belt or body harness, or a snap–hook spliced or sewn to a lanyard or self–retracting lanyard).

Contaminant. A harmful, irritating or nuisance material that is foreign to the environment.

NOTE: For definition of "harmful exposure" refer to section 5140 of General Industry Safety Orders.

Controlled Access Zone (CAZ). An area in which certain work may take place without the use of guardrails, personal fall arrest systems, or safety nets and access to the zone is controlled.

Coon. To straddle and move horizontally on a beam while walking on the bottom flanges.

Crawling Board (Chicken Ladder). A plank with cleats spaced and secured at equal intervals and used by workers on roofs as a means of access.

Dangerous Equipment. Equipment (such as pickling or galvanizing tanks, degreasing units, machinery, electrical equipment, and other construction related equipment such as hoppers and conveyors) which, as a

result of form or function, may be hazardous to employees who fall onto or into such equipment.

Deceleration Device. Any mechanism, such as a rope grab, rip–stitch lanyard, specially–woven lanyard, tearing or deforming lanyards, automatic self–retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

Deceleration Distance. The additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

Defect. Any characteristic or condition which tends to weaken or reduce the strength or the safety of the tool, machine, object, or structure of which it is a part.

Division. The current Division of Occupational Safety and Health or any of its predecessors including the former Division of Industrial Safety or the Division of Occupational Safety and Health Administration. Reference to the former Division of Industrial Safety or Division of Occupational Safety and Health Administration in these Orders is meant to refer to their successor, the Division of Occupational Safety and Health, or any subsequent successor agency.

Drop Line (Safety Line). A vertical line from a fixed anchorage, independent of the work surface, to which the lanyard is affixed.

Elevator, Construction. Any means used to hoist persons or material of any kind on a building under course of construction, when operated within guides, by any power other than muscular power.

Emergency Medical Services.

(A) Appropriately Trained Person. A physician or registered nurse currently licensed in California or a person possessing a current certificate (training within the past three years or as specifically stated on the certificate) from the American National Red Cross or equivalent training that can be likewise verified. Acceptable Red Cross certificates are those from the Standard First–Aid Multimedia, Standard First Aid and Personal Safety, or Advanced First Aid and Emergency Care courses.

NOTE: Equivalent training includes, but is not limited to, training which is equivalent to that provided by the American National Red Cross, or training required for certification as mobile intensive care paramedics as provided under chapter 2.5, article 3, sections 1480 through 1484.4 of the California Health and Safety Code: and, courses that are given by nationally recognized voluntary health organizations, official agencies, such as Mine Safety and Health Administration, or accredited teaching institutions.

(B) Emergency Medical Services. The communications, transportation and medical and related services, such as first aid, rendered in response to the individual need for immediate medical care in order to reduce or prevent suffering and disability and reduce the incidence of death.

(C) First Aid. The recognition of, and prompt care for injury or sudden illness prior to the availability of medical care by licensed health–care personnel.

Employer.

(A) The State and every State agency.

(B) Each county, city, district, and all public and quasi–public corporations and public agencies therein.

(C) Every person including any public service corporation which has any natural person in service.

(D) The legal representative of any deceased employer.

Excavation, Trenches, Earthwork.

(A) Bank. A mass of soil rising above a digging level.

(B) Exploration Shaft. A shaft created and used for the purpose of obtaining subsurface data.

(C) Geotechnical Specialist (GTS). A person registered by the State as a Certified Engineering Geologist, or a Registered Civil Engineer trained in soil mechanics, or an engineering geologist or civil engineer with a minimum of 3 years applicable experience working under the direct supervision of either a Certified Engineering Geologist or Registered Civil Engineer.

(D) Hard Compact (as it applies to section 1542). All earth material not classified as running soil.

(E) Lagging. Boards which are joined, side–by–side, lining an excavation.

(F) Running Soil (as it applies to section 1542). Earth material where the angle of repose is approximately zero, as in the case of soil in a nearly liquid state, or dry, unpacked sand which flows freely under slight pressure. Running material also includes loose or disturbed earth that can only be contained with solid sheeting.

(G) Shaft. An excavation under the earth's surface in which the depth, is much greater than its cross–sectional dimensions such as those formed to serve as wells, cesspools, certain foundation footings, and under streets, railroads, buildings, etc.

Exit. Exit is a continuous and unobstructed means of egress to a public way, and shall include intervening doors, doorways, corridors, exterior exit balconies, ramps, stairways, smoke–proof enclosures, horizontal exits, exit passageways, exit courts, and yards.

Failure. Load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

Falsework and Shoring for Concrete Construction. Temporary formwork and vertical shoring, etc., to support concrete and placing operations for supported slabs of concrete structures.

Fire Extinguishers, Portable.

(A) Portable fire extinguishers are classified for use on certain classes of fires and rated for relative extinguishing effectiveness at a temperature of plus 70 degrees Fahrenheit by nationally recognized testing laboratories. This is based upon the classification of fires and the fire–extinguishment potentials as determined by fire tests.

(B) The classification and rating system described in this standard is that used by Underwriters' Laboratories, Inc., and Underwriters' Laboratories of Canada and is based on extinguishing pre–planned fires of determined size and description as follows:

1. Class A Rating. Wood and excelsior.

2. Class B Rating. Two–inch depth n–heptane fires in square pans.

3. Class C Rating. No fire test. Agent must be a nonconductor of electricity.

4. Class D Rating. Special tests on specific combustible metal fires.

Fires.

(A) Class A. Fires in ordinary combustible materials, such as wood, cloth, paper, rubber, and many plastics.

(B) Class B. Fires in flammable liquids, gases, and greases.

(C) Class C. Fires which involve energized electrical equipment where the electrical nonconductivity of the extinguishing media is of importance. (When electrical equipment is de–energized, extinguishers for Class A or B fires may be used safely.)

(D) Class D. Fires in combustible metals, such as magnesium, titanium, zirconium, sodium, and potassium.

Flammable Liquid. A liquid having a flash point below 100° F (37.8° 5C) and having a vapor pressure not exceeding 40 pounds per square inch (absolute) at 100° F (37.8° C) and shall be known as a Class I liquid. Class I liquids shall be subdivided as follows:

(A) Class IA shall include those having flash points below 73° F (22.8° 5C) and having a boiling point below 100°F (37.8° C).

(B) Class IB shall include those having flash points below 73° F (22.8° 5C) and having a boiling point at or above 100° F (37.8° C).

(C) Class IC shall include those having flash points at or above 73° F (22.8° C) and below 100° F (37.8° C).

Floor Area. The area included within the surrounding exterior walls of a building or portion thereof, exclusive of vent shafts and courts. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above.

Free Fall. The act of falling before a personal fall arrest system begins to apply force to arrest the fall.

Free Fall Distance. The vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self–retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

Grade (Adjacent Ground Elevation). The lowest point of elevation of the finished surface of the ground, paving or sidewalk, within the area between the building and the property line, or when the property line is more than 5 feet from the building, between the building and a line 5 feet from the building.

Guardrail. (See Railing)

Guy. A line that steadies a mast or structure by pulling against an off–center load.

Handrail. A rail used to provide employees with a handhold for support.

Haulage Vehicle, as used in these Orders. A self–propelled vehicle including its trailer, used to transport materials on construction projects. The term "haulage vehicle" includes trucks, truck and trailer combinations, and all other similar equipment used for haulage.

Hazardous Substance. One which by reason of being explosive, flammable, extremely flammable, poisonous, corrosive, oxidizing, irritant, or otherwise harmful is likely to cause injury.

Helicopter. A rotary wing aircraft which depends principally for its support and motion in the air upon the lift generated by one or more power–driven rotors, rotating on substantially vertical axes. It can hover, fly backward and sideways, in addition to forward flight. (The following definitions (A) through (K) apply to helicopter operations only.):

(A) Automatic Release Device. A mechanism for releasing the load without deliberate action by the pilot or crewmen.

(B) Dangerous Materials. Explosives, flammables, oxidizing materials, corrosive liquids, compressed gases, poisons, radioactive materials, or a combination of other materials which could produce dangerous material.

(C) Dust Control. The control of dust by use of water or other materials.

(D) Emergency. Human lifesaving or protective operation.

(E) External Load (Helicopter). A cargo which is not contained wholly within the fuselage of the aircraft.

(F) Ground Crew (Helicopter). Those employees not on board the helicopter who are directly involved with helicopter operations.

(G) Heliport. An area used for regular helicopter landings and take-offs.

(H) Line Stringing Operation (Helicopter). The placing of any line (power, communication, or other line, including the pulling line) between two or more points by pulling it with an airborne helicopter. This does not include towers, poles, or coiled lines transported as a unit.

(I) Passenger (Helicopter). A person to be transported who is not a member of the helicopter crew.

(J) Practicable. Means capable of being accomplished by reasonably available and workable means.

(K) Sling Load (Helicopter). An external load carried below or partly below the level of the landing gear.

Hole. Any opening in a floor or platform, which is smaller than an opening.

Jacking Operation. The task of lifting a slab (or group of slabs) vertically from one location to another (e.g., from the casting location to a temporary (parked) location, or from a temporary location to another temporary location, or to its final location in the structure), during the construction of a building/structure where the lift–slab process is being used.

Jobsite vehicle. A vehicle which is operated on a jobsite exclusively and is excluded from the provisions of applicable traffic and vehicular codes, and haulage and earthmoving vehicles regulated by the provisions of Article 10 of these Orders.

Ladders.

(A) Ladder. A device other than a ramp or stairway, designed for use in ascending or descending at an angle with the horizontal. A ladder is intended to be stationary while in service and consists of two side pieces called siderails, joined at short intervals by crosspieces called steps, rungs or cleats.

(B) Ladder, Extension. A ladder consisting of two or more sections, with guides or brackets so arranged that the ladder may be adjusted to different lengths by sliding and locking the movable section or sections.

(C) Ladder, Fixed. A ladder permanently fastened to a structure.

(D) Ladder, Job–built. A ladder that is fabricated by employees, typically at the construction site, and is not commercially manufactured.

(E) Ladder, Single–rail. A portable ladder with rungs, cleats, or steps mounted on a single rail instead of the normal two rails used on most other ladders.

(F) Ladder, Portable. A ladder, not permanently fixed in place, which may be used at various locations.

(G) Ladder, Stepladder. A ladder having treads and so constructed as to be self–supporting.

(H) Ladder, Steps. Either rungs, treads, or cleats.

(I) Ladder, Step stool. A self–supporting, collapsible, portable ladder, nonadjustable in length, 32 inches or less in overall size, with flat steps and without a pail shelf, designed to be climbed on the ladder top cap as well as all steps. The rails may continue above the top cap.

(J) Ladder, Trestle or "A." A ladder consisting of two special, single ladders hinged together at the top to form equal angles with the surface on which they stand.

(K) Ladder, Extension Trestle. A ladder consisting of an "A" or trestle ladder with an additional single ladder, which is supported in a vertical position by the "A" ladder.

Ladder, Double Cleat. A ladder that is similar to a single cleat ladder, but is wider, with an additional center rail which will allow for two–way traffic for workers in ascending and descending.

Lanyard. A flexible line to secure a wearer of a safety belt or harness to a drop line, lifeline, or fixed anchorage.

Leading Edge. The edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Lifeline. A horizontal line (i.e. catenary line) between two fixed anchorages, independent of the work surface, to which the lanyard is secured either by tying off or by means of a suitable sliding connection. For the purposes of these orders, lifelines may be vertical as well as horizontal (i.e. when used with a body harness).

Lift–Slab. An operation whereby a concrete slab is lifted into an elevated position by means of jacks located above the slab on columns or other supporting members.

Limited Access Zone. An area alongside a masonry wall which is under construction and which is clearly demarcated to limit access by employees.

Linemen's Body Belt. A leather or web (cotton or nylon) belt designed specifically for employees working on poles. It consists of a waist belt, generally cushioned, with a front buckle, two D rings for attaching safety straps and a multiple–looped strap for holding, rings, snaphooks, holsters and other tool holding devices.

Liquid. As applied to flammable and combustible liquids means any material which has a fluidity greater than that of 300 penetration asphalt when tested in accordance with ASTM Test for Penetration for Bituminous Materials, D–5–7.1.

Loading Device. A mobile mechanical–powered machine of the skip loader type used for picking up materials and loading or dumping them into haulage vehicles, bins, or hoppers, excluding boom–type excavators and endless belt or chain conveyors.

Lower Levels. Those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

Lumber.

(A) Douglas Fir or Equivalent. "Selected lumber" or other suitable material of proper size, having strength at least equal to the specified Douglas fir members.

(B) "Selected Lumber." Douglas fir that has been graded under standards as high as those followed by the West Coast Lumber Inspection Bureau or by the Western Wood Products Association as suitable for a bending stress of 1,500 psi.

(C) "Structural Plank." Douglas fir graded for scaffold plank use and which has an allowable bending stress of at least 2,200 pounds per square inch (psi). Select structural scaffold plank, as described in Paragraph 171–b of the January 1, 2000 Standard Grading Rules No. 17, published by the West Coast Lumber Inspection Bureau and Scaffold No. 2 as described in Paragraph 58.12 of the 1998 Edition of the Western Lumber Grading Rules published by the Western Wood Products Association, satisfy this definition.

(D) Size. Unless otherwise stated, the lumber sizes referred to in these Orders mean nominal sizes and thus include both the rough and dressed members of those nominal sizes.

Mast Tower. A single vertical member on which a cantilevered platform, suitable for carrying material, may be moved up and down.

Material Hoist. A hoist for raising and lowering materials only, with the hoisting of persons being prohibited.

(A) Cage. The load–carrying unit, consisting of a platform and enclosure, and including a top as well as walls.

(B) Cantilevered Hoist Tower. A hoist tower in which the platform, cage, or bucket travels on guide rails that are generally an integral part of the vertical tower member(s) and in a vertical plane, outboard from the tower member.

(C) Equivalent. An alternate design, feature, device, or protective action which provides an equal degree of safety.

(D) Hoistway. A shaft way for the travel of one or more platforms, cages, or buckets. It includes the pit and terminates at the underside of the beam at the top of the tower or structure.

(E) Inside Hoists. Hoistways contained entirely within the building being served, which sometimes use the building structure itself for the support of the top beams, guide rails, and appurtenant parts necessary for the proper functioning of the platform.

(F) Load. The total superimposed weight on the hoist platform or bucket.

(G) Platform. The load–carrying unit, including the frame, which directly supports the load.

(H) Rated Load. The maximum load for which the material hoist is designed and built by the manufacturer and which is shown on the equipment nameplate(s).

(I) Rated Speed. The speed at which the platform, cage, or bucket is designed to operate in the up direction with a rated load in or on the load–carrying unit.

(J) Rope. Refers to wire rope only.

(K) Tower. The primary structure which forms the hoistway for the travel of the platform, cage, or bucket, and which provides the support for the top beams, guide rails, and other appurtenant parts necessary for the operation of such units.

Mechanical Equipment. All motor or human propelled wheeled equipment used for roofing work, except wheelbarrows and mopcarts.

Midrail. A rail approximately midway between the top rail and platform, that is secured to the uprights erected along the exposed sides and ends of platforms.

Nationally Recognized Testing Laboratory (NRTL). A laboratory which has been recognized by the Department of Labor, Occupational Safety and Health Administration (OSHA) as meeting the requirements of 29 CFR 1910.7.

O.D. O.D. means optical density and refers to the light refractive characteristics of a lens.

Opening. An opening in any floor or platform, 12 inches or more in the least horizontal dimension. It includes: stairway floor openings, ladderway floor openings, hatchways and chute floor openings.

Personal Fall Arrest System. A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

Personal Fall Restraint System. A system used to prevent an employee from falling. It consists of anchorages, connectors, body belt/harness. It may include, lanyards, lifelines, and rope grabs designed for that purpose.

Personal Fall Protection System. A personal fall protection system includes personal fall arrest systems, positioning device systems, fall restraint systems, safety nets and guardrails.

Personal Protective Equipment. Protection where modified by the words head, eye, body, hand, and foot, as required by the Orders in Subchapter 4, means the safeguarding obtained by means of safety devices and safeguards of the proper type for the exposure, and of such design, strength, and quality as to eliminate, preclude, or mitigate the hazard.

NOTE: See "approved."

Personnel Hoist. A mechanism for use in connection with the construction, alteration, maintenance, or demolition of a building structure, or other work. It is used for hoisting and lowering workers or materials, or both, is equipped with a car that moves on guide members during its vertical movement, and includes its hoistway.

(A) Buffer. A device used on construction elevators designed to stop a descending car or counterweight beyond its normal limit of travel by storing or by absorbing and dissipating the kinetic energy of the car or counterweight.

1. Buffer, Hydraulic. A buffer using fluid as a medium which absorbs and dissipates the kinetic energy of the descending car or counterweight.

2. Buffer Stroke, Hydraulic. The fluid–displacing movement of the buffer plunger or piston, excluding the travel of the buffer–plunger accelerating device.

3. Spring Buffer. A buffer which stores in a spring the kinetic energy of the descending car or counterweight.

4. Spring–Buffer Load Rating. The load required to compress the spring an amount equal to its stroke.

5. Spring–Buffer Stroke. The distance the contact end of the spring can move under a compressive load until all coils are essentially in contact.

(B) Car (Cage).

1. Hoist Car. The load–carrying unit including its platform, car frame, enclosure, and car door or gate.

2. Car Door or Gate Electric Contact. An electrical device, the function of which is to prevent operation of the driving machine by the normal operating device unless the car door or gate is in the closed position.

3. Car Enclosure. The top and the walls of the car resting on, and attached to, the car platform.

4. Car Frame (Sling). The supporting frame to which the car platform, upper and lower sets of guide shoes, car safety, and the hoisting ropes or hoisting rope sheaves or other lifting mechanism are attached.

5. Car Platform. The structure which forms the floor of the car and which directly supports the load.

(C) Clearance.

1. Bottom Car Clearance. The clear vertical distance from the pit floor (ground or foundation) to the lowest structural or mechanical part, equipment, or device installed beneath the car platform, except guide shoes or rollers, safety–jaw assemblies, and platform aprons or guards, when the car rests on its fully compressed buffers.

2. Top Car Clearance. The shortest vertical distance between the top of the car crosshead, or between the top of the car where no crosshead is

provided, and the nearest part of the overhead structure, or any other obstruction, when the car floor is level with the top terminal landing.

3. Top Counterweight Clearance. The shortest vertical distance between any part of the counterweight structure and the nearest part of the overhead structure, or any other obstruction, when the car floor is level with the bottom terminal landing.

(D) Door or Gate.

1. Car or Hoistway Door Gate. The sliding portion of the car or the hinged or sliding portion in the hoistway enclosure which closes the opening, giving access to the car or to the landing.

2. Biparting Door. A vertically or horizontally sliding door consisting of two or more sections so arranged that the sections or groups of sections open away from each other and so interconnected that all sections operate simultaneously.

3. Manually Operated Door or Gate. A door or gate which is opened and closed by hand.

(E) Emergency Stop Switch. A device located in the car which, when manually operated, causes the power to be removed from the driving–machine motor, thereby causing the brake to be applied.

(F) Guide Members. Fixed vertical steel sections designed to prevent lateral movement of the car. Guide members may be standard elevator T–rails or other suitable sections.

(G) Guide Shoes or Rollers. Devices attached to the car frame or counterweight which cause the car to be guided by the guide members.

(H) Hoistway. A temporary shaftway; the space traveled by the car.

1. Hoistway Enclosure. The structure which isolates the hoistway from all other parts of the building and on which the hoistway doors or gates, and door or gate assemblies, are installed.

2. Hoistway–Door or Gate Interlock. A device having the following two related and interdependent functions which are:

a. Preventing the operation of the driving machine by the normal operating device unless the hoistway door or gate is locked in the closed position and,

b. Preventing the opening of the hoistway door or gate from the landing side unless the car is within the landing zone and is either stopped or being stopped.

3. Car Door or Gate Separate Mechanical Lock. A mechanical device, the function of which is to lock a car door or gate in the closed position as the car leaves the receiving landing and to prevent the door or gate from being opened unless the car is within the landing zone.

4. Hoistway Unit System. A series of hoistway–door or gate interlocks, the function of which is to prevent operation of the driving machine by the normal operating device unless all hoistway doors or gates are in the closed position and locked.

(I) Landing.

1. Hoist Landing. That portion of a floor, balcony, or platform used to receive and discharge passengers or material.

2. Electric Driving Machine. A machine whose energy is applied by an electric motor.

3. Geared–Drive Machine. A direct–drive machine in which the energy is transmitted from the motor to the driving sheave, drum, or shaft through gearing.

4. Gearless Traction Machine. A traction machine without intermediate gearing, which has the traction sheave and the brake drum mounted directly on the motor shaft.

5. Rack and Pinion Machine. A machine in which the motion of a car is obtained by a power–driven rotating pinion, or pinions, mounted on the car, traveling on a stationary rack mounted on the supporting mast (tower).

6. Traction Machine. A machine in which the motion of a car is obtained through friction between the suspension ropes and a traction sheave.

7. Winding–Drum Machine. A geared–drive machine in which the hoisting ropes are fastened to, and wind on, a drum.

8. Worm–Geared Machine. A direct–drive machine in which the energy from the motor is transmitted to the driving sheave or drum through worm gearing.

(K) Mast (Tower). A vertical structure which supports and guides the cart (and the counterweight and overhead when used) outside of the mast structure.

(L) Operating Device. The car switch, push button, lever, or other manual device used to actuate the control.

(M) Operation. The method of actuating the control.

1. Car–Switch Operation. An operation wherein the movement and direction of travel of the car are directly and solely under the control of the operator by means of a manually operated car switch in the car.

(N) Overhead Structure (Cathead). All of the structural members or platforms supporting the hoist machinery, sheaves, or equipment at the top of the hoistway.

(O) Oxygen Deficient Atmosphere. An atmosphere containing oxygen at a concentration of less than 19.5 percent by volume.

(P) Pit. That portion of a hoistway extending from the threshold level of the lowest landing door to the floor (ground or foundation) at the bottom of the hoistway.

(Q) Rated Load. The load for which the hoist is designed and installed to lift at the rated speed.

(R) Rated Speed. The speed in the up direction, with rated load in the car, at which a hoist is designed to operate.

(S) Rope. Hoist wire ropes, governor wire ropes, and compensating wire ropes.

(T) Runby.

1. Bottom Hoist–Car Runby. The distance between the car–buffer striker plate and the striking surface of the car buffer when the car floor is level with the bottom terminal landing.

2. Bottom Hoist–Counterweight Runby. The distance between the counterweight–buffer striker plate and the striking surface of the counterweight buffer when the car floor is level with the top terminal landing.

(U) Safety, Car or Counterweight. A mechanical device attached to the car frame or to an auxiliary frame, or to the counterweight frame, to stop and hold the car or counterweight in case of predetermined over–speed or free fall, or if the hoisting ropes slacken.

(V) Slack–Rope Switch. A device which automatically causes the power to be removed from the hoist driving–machine motor and applies the brake when the hoisting ropes of a winding–drum machine become slack.

(W) Stopping Device.

1. Terminal Speed–Limiting Device. A device which automatically reduces the speed as a car approaches a terminal landing, independently of the functioning of the operating device and the normal–terminal stopping device, if these devices fail to slow down the car as intended.

2. Final–Terminal Stopping Device. A device which automatically causes the power to be removed from a hoist driving–machine motor and applies the brake independent of the functioning of the normal–terminal stopping device, the operating device, or an emergency terminal stopping device, after the car has passed terminal landings.

3. Normal–Terminal Stopping Device. A device or devices to slow down and stop a hoist car automatically at or near a terminal landing, independently of the functioning of the operating device.

(X) Tower. A vertical structure which supports and guides the car (and the counterweight and overhead when used) within the tower structure.

(Y) Travel (Rise). The vertical distance between the bottom terminal landing and the top terminal landing of a hoist.

Platform. An elevated working area or surface used for supporting workers, materials and equipment.

Powder–Actual Tools.

(A) Cased Power Load. A power load with the propellant contained in a closed case.

(B) Caseless Power Load. A power load with the propellant in solid form not requiring containment.

(C) To Chamber. To fit the chamber exactly without force.

(D) Fasteners. Any pins (unthreaded heads) or studs (threaded heads) driven by powder–actuated tools.

(E) Fixture. A special shield which provides equivalent protection where the standard shield cannot be used.

(F) Head. That portion of a fastener which extends above the work surface after being properly driven.

(G) High–Velocity Tool. A tool whose velocity has been measured 10 times while utilizing the combination of:

(1) The lightest commercially available fastener designed for the tool.

(2) The strongest commercially available power load that will properly chamber in the tool that will produce an average velocity from the 10 tests in excess of 492 feet per second (150m/s).

(H) Medium–Velocity Tool. A tool whose test velocity has been measured 10 times while utilizing the highest velocity combination of:

(1) The lightest commercially available fastener designed for the tool.

(2) The strongest commercially available power load that will properly chamber in the tool.

(3) The piston designed for that tool and appropriate for that fastener that will produce an average test velocity from 10 tests in excess of 328 feet per second (100m/s) but not in excess of 492 feet per second (150m/s) with no single test having a velocity of 525 feet per second (160m/s).

(I) Low–Velocity Tool. A tool whose test velocity has been measured 10 times while utilizing the highest velocity combination of:

(1) The lightest commercially available fastener designed for the specific tool.

(2) The strongest commercially available power load that will properly chamber in the tool.

(3) The piston designed for that tool and appropriate for that fastener that will produce an average test velocity from the 10 tests not in excess of 328 feet per second (100m/s) with no single test having a velocity of over 354 feet per second (108m/s).

(J) Misfire. A condition in which the power load fails to ignite after the tool has been operated.

(K) Pole Tool Assembly. An attachment to a powder–actuated tool to facilitate remote operation.

(L) Powder–Actuated Fastening System. A fastening system using a powder–actuated tool, a power load and a fastener.

(M) Powder–Actuated Tool, also known as Tool. A tool that utilizes the expanding gases from a power load to drive a fastener.

(N) Power Load. The energy source used in powder–actuated tools.

(O) Shield. A device, attached to the muzzle end of a tool, which is designed to confine flying particles.

(P) Spalled Area. A damaged and nonuniform concrete or masonry surface, such as one damaged by a blow or a previously unsuccessful fastening.

(Q) Valid Operator's Card. A card issued by a qualified and authorized instructor which certifies the holder of the card has been trained in the proper operation of and is currently authorized to use the tool or tools specified on such card.

Precast Concrete. Concrete members (such as walls, panels, slabs, columns, and beams) which have been formed, cast, and cured prior to final placement in a structure.

Positioning Device System. A body belt or body harness system rigged to allow an employee to be supported on an elevated surface, such as a wall, and work with both hands free while leaning.

Qualified Person, Attendant or Operator. A person designated by the employer who by reason of training, experience or instruction has demonstrated the ability to safely perform all assigned duties and, when required, is properly licensed in accordance with federal, state, or local laws and regulations.

Radiant Energy. Energy that travels outward in all directions from its source.

Railing. A barrier consisting of a top rail and a midrail secured to uprights and erected along the exposed sides and ends of platforms.

Ramp. A surfaced sloping passageway connecting two different levels.

Readily Available. Means in a location with no obstacles to prevent immediate acquisition for use.

Reeving. A rope system in which the rope travels around drums and sheaves.

Reshoring. The construction operation in which shoring equipment (also called reshores or reshoring equipment) is placed, as the original forms and shores are removed, in order to support partially cured concrete and construction loads.

Roofing (or Bearer) Bracket. A bracket used in slope roof construction, having provisions for fastening over the ridge and secured to some suitable object.

Rope. Refers to wire rope unless otherwise specified.

Rope Grab. A deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

ROPS. ROPS means roll–over protective structure.

Runway. An elevated passageway.

S.A.E. S.A.E. means Society of Automotive Engineers.

Safety Belt or Harness. A device specifically for the purpose of securing, suspending, or retrieving a worker in or from a hazardous work area.

Safety Factor. Ratio of the ultimate breaking strength of a member or piece of material or equipment to the actual working stress or safe load when in use.

Safety Line. One that is provided to protect a worker from falls caused by failure of scaffolds, working platforms, or loss of balance, and shall extend to within 4 feet of ground or other stable surface.

Safety–Monitoring System. A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

Self–Retracting Lifeline/Lanyard. A deceleration device containing a drum–wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

Safety Strap. A web strap designed specifically for use in conjunction with a linemen's belt as an aid in climbing poles and to secure the employee to the pole in a manner that permits work with both hands.

Scaffolds and Staging.

(A) Scaffold. Any temporary, elevated structure used for the support of a platform.

NOTE: The term "scaffold" is used with inclusion of the platform and all supporting members when reference is made to loading factors.

(B) Scaffold, Engineered. Scaffold designed by a Civil Engineer currently registered in the State of California and experienced in scaffold design.

(C) Scaffold, Light–Duty. A scaffold designed and constructed to carry a working load of 25 pounds per square foot of scaffold platform, including weight of materials and workers on the platform.

NOTE: Load requirements for light–duty interior scaffolds are contained in Section 1640(c)(1).

(D) Scaffold, Medium–Duty. A scaffold designed and constructed to carry a working load of 50 pounds per square foot of scaffold platform, including weight of materials and workers on the platform.

(E) Scaffold, Heavy–Duty. A scaffold designed and constructed to carry a working load of 75 pounds per square foot of scaffold platform, including weight of materials and workers on the platform.

(F) Scaffold, Special–Duty. A scaffold designed and constructed to carry a working load that exceeds 75 pounds per square foot of scaffold platform, including weight of materials and workers on the platform.

(G) Ledger. The horizontal member of a scaffold that runs at right angles to the wall and directly supports the planking of the platform.

(H) Ribbon. The horizontal member in a scaffold which runs from upright to upright parallel to the building and is normally placed directly under the ledger.

(I) Uprights. The vertical members of a pole scaffold, such as posts, poles, or columns.

(J) Scaffold, Outrigger. A scaffold not suspended by ropes, that is supported by outrigger beams cantilevered out from the structure to which they are anchored.

(K) Scaffold, Suspended. A scaffold suspended from above by ropes or cables and rigged with pulley blocks, winches, or equivalent, so that the scaffold elevation is easily adjustable.

(L) Scaffold, Suspended, Power–Driven. Any suspended scaffold equipped with 1 or more power units for raising or lowering that are a part of and travel with the scaffold.

(M) Thrust–Out. The beam extending out from a structure to support a suspended scaffold.

(N) Stud Jack. A scaffold device of metal with saw–like teeth that grip the stud when the load is applied, and having a cantilevered ledger for the support of a working platform.

(O) Catenary or Stretch Cables. Cables for the support of staging, that are secured at each end and extend in a nearly horizontal plane. The staging is placed on and supported by these cables.

(P) Boatswain's Chair. A seat which may be raised or lowered by means of attached rigging which suspends it and the seated worker from above.

(Q) Working Load. Load imposed by workers, materials and equipment.

(R) Brace. A tie that holds one scaffold member in a fixed position with respect to another.

(S) Coupler. A device for locking together the component parts of a tubular metal scaffold. (The material used for the couplers shall be of a structural type, such as drop–forged steel, malleable iron, or structural grade aluminum.)

(T) Maximum Rated Load. The total of all loads including the working load, the weight of the scaffold, and such other loads that may be reasonably anticipated.

(U) Scaffold, Bricklayer's Square. A scaffold composed of framed wood squares which support a platform.

(V) Scaffold, Carpenter's Bracket. A scaffold consisting of wood or metal brackets that support a platform.

(W) Scaffold, Float. A scaffold hung from overhead supports by means of ropes and usually consisting of a 3/4–inch plywood platform supported by 2 securely fastened bearers.

(X) Scaffold, Horse. A scaffold composed of horses supporting a work platform.

(Y) Scaffold, Interior Hung. A scaffold suspended from the ceiling or roof structure.

(Z) Scaffold, Ladder Jack. A light trade scaffold supported by brackets attached to ladders.

(AA) Scaffold, Manually Propelled Mobile. (See Rolling Scaffold.)

(BB) Scaffold, Needle Beam. (See Outrigger Scaffold.)

(CC) Scaffold, Pole. A scaffold built of one or two rows of vertical members, horizontal ledgers, platform planks, ribbons and braces.

(DD) Scaffold, Rolling. A portable rolling scaffold supported by caster wheels.

(EE) Scaffold, Tube and Coupler. An assembly consisting of tubing which serves as posts, ledgers, ribbons, ties and braces, a base supporting the posts, and special couplers which serve to connect the uprights and to join the various members.

(FF) Scaffold, Tubular Welded Frame. A sectional panel or frame metal scaffold substantially built–up of prefabricated, welded sections which consist of posts and horizontal ledgers with intermediate members.

(GG) Scaffold, Window Jack. A scaffold, the platform of which is supported by a bracket or jack which projects through a window opening.

(HH) Scaffold, Wooden Pole. A scaffold built of one or two rows of vertical members (uprights), horizontal ledgers, platform planks, ribbons and braces. A single pole scaffold consists of one row of uprights and a double pole scaffold consists of two rows of uprights.

Shall. Mandatory.

Sheet Pile. A pile, or sheeting, that may form one of a continuous interlocking line, or a row of timber, concrete, or steel piles, driven in close contact to provide a tight wall to resist the lateral pressure of water, adjacent earth, or other materials.

Shore. A supporting member that resists a compressive force imposed by a load.

Should. Recommended.

Side Pull or Side Loading. A load applied at any angle to the vertical plane of the boom.

Skip. A container with sides in which materials are hoisted.

Snaphook. A connector comprised of a hook–shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object.

Stairs, Stairways. A series of steps and landings having 2 or more risers leading from one level or floor to another.

Standard. Standard as referred to ladders, ROPS, railings, etc., means as described elsewhere in the Orders, ultimately based upon standards established by ANSI, SAE, engineers competent in specialized fields, equipment manufacturers and other duly recognized authorities.

Standing Rope (Guy). A supporting rope which maintains a constant distance between the points of attachment to the two components connected by the rope.

Story. That portion of a building included between the upper surface of any floor and the upper surface of the floor next above, except that the topmost story shall be that portion of a building included between the upper surface of the topmost floor and the ceiling or roof above. If the finished floor level directly above a basement, cellar or unused underfloor space is more than 6 feet above grade as defined herein for more than 50 percent of the total perimeter or is more than 12 feet above grade as defined herein at any point, such basement, cellar or unused underfloor space shall be considered as a story.

Structural Competence. The ability of the machine and its components to withstand the stresses imposed by applied loads.

Structure. That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

Toeboard. A barrier secured along the sides and ends of a platform at the platform level used to guard against the falling of material.

Trench Jack. Screw, pneumatic or hydraulic type jacks used as cross bracing in a trench shoring system.

Trench Shield. A shoring system composed of plates and bracing, welded or bolted together, which can safely support the walls of a trench from the ground level to the trench bottom and which can be moved along as work progresses.

Unprotected Sides and Edges. Any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or standard guardrail or protection provided.

Vertical Slip Forms. Forms which are jacked vertically during placement of concrete.

Wall opening. A gap or void 30 inches or more high and 18 inches or more wide, in a wall or partition, through which employees can fall to a lower level.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 2–15–90; operative 3–17–90 (Register 90, No. 8). For prior history, see Register 87, No. 24.
2. Amendment of subsection (a) filed 10–22–90; operative 11–21–90 (Register 90, No. 48).
3. Amendment of section adding definition for "Competent Person" and amending subsections under Excavation, Trenches, and Earthwork filed 8–26–91; operative 9–25–91 (Register 92, No. 13).

4. Addition of "Handrail," new subsections (D), (E) and (I) and relettering under Ladders filed 6–1–92; operative 7–1–92 (Register 92, No. 23).
5. New definition "Jacking Operation" filed 8–11–92; operative 9–10–92 (Register 92, No. 33).
6. Amendment of "Qualified Person" definition filed 5–22–95; operative 6–21–95 (Register 95, No. 21).
7. Amendment of definition of "Explosives" filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
8. Amendment of "Lifeline" and adoption of twenty–five new definitions filed 7–30–97; operative 8–29–97 (Register 97, No. 31).
9. Amendment of definition of "Lumber" filed 6–19–2001; operative 7–19–2001 (Register 2001, No. 25).
10. Amendment of definition of "scaffolds and staging" repealing subsections (B) and (C), adding new subsection (B), relettering subsections and amending newly designated subsections (C)–(F), (P) and (DD) filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).
11. Amendment of subsection (a) and repealer of definition "Explosives" filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).
12. New definition of "Jobsite vehicle" filed 3–5–2008; operative 4–4–2008 (Register 2008, No. 10).

### § 1505. Approvals.

(a) Approvals.

(1) When the term "approved" is used in these orders, it shall refer to products, materials, devices, systems, or installations that have been approved, listed, labeled, or certified as conforming to applicable governmental or other nationally recognized standards, or applicable scientific principles. The approval, listing, labeling, or certification of conformity, shall be based upon an evaluation performed by a person, firm, or entity with appropriate registered engineering competence or by a person, firm, or entity, independent of the manufacturer or supplier of the product, with demonstrated competence in the field of such evaluation.

EXCEPTION: Where written approval by the Division is required in these orders.

(2) The term "approved" shall also refer to products, materials, devices, systems, or installations that have been approved, listed, labeled, or certified by a Nationally Recognized Testing Laboratory (NRTL).

(b) The division may require proof in addition to that under (a) that the products, materials, devices, systems, or installations will provide reasonable safety under the conditions of use.

(c) When these orders require an approval of products, materials, devices, systems, or installations and that approval is not available under (a), it will be necessary to submit to the division engineering calculations, stress analyses, and other data for each design, model, or make for which an approval is requested. The division will then approve or disapprove the product, material, device, system, or installation as submitted or under specified conditions.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment filed 10–18–79; effective thirtieth day thereafter (Register 79, No. 42).
3. Amendment of subsection (a) filed 2–15–90; operative 3–17–90 (Register 90, No. 8).

## Article 3. General

### § 1508. Permits.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 81–74 as an emergency; effective upon filing (Register 74, No. 31).
2. Certificate of Compliance filed 11–22–74 (Register 74, No. 48).
3. Certificate of Compliance refiled 11–27–74 (Register 74, No. 48).
4. Repealer and new section filed 11–29–74; effective thirtieth day thereafter (Register 74, No. 48).
5. Amendment filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).

### § 1509. Injury and Illness Prevention Program.

(a) Every employer shall establish, implement and maintain an effective Injury and Illness Prevention Program in accordance with section 3203 of the General Industry Safety Orders.

(b) Every employer shall adopt a written Code of Safe Practices which relates to the employer's operations. The Code shall contain language equivalent to the relevant parts of Plate A–3 of the Appendix.

(c) The Code of Safe Practices shall be posted at a conspicuous location at each job site office or be provided to each supervisory employee who shall have it readily available.

(d) Periodic meetings of supervisory employees shall be held under the direction of management for the discussion of safety problems and accidents that have occurred.

(e) Supervisory employees shall conduct "toolbox" or "tailgate" safety meetings, or equivalent, with their crews at least every 10 working days to emphasize safety.

NOTE: Authority cited: Sections 142.3 and 6401.7, Labor Code. Reference: Sections 142.3 and 6401.7, Labor Code.

HISTORY

1. Amendment of subsection (b) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment of subsection (b) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
3. Amendment of subsection (d) filed 10–18–77; effective thirtieth day thereafter (Register 77, No. 43).
4. Repealer and new section filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).
5. Amendment filed 1–16–91; operative 2–15–91 (Register 91, No. 8).

### § 1510. Safety Instructions for Employees.

(a) When workers are first employed they shall be given instructions regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices.

(b) The employer shall permit only qualified persons to operate equipment and machinery.

(c) Where employees are subject to known job site hazards, such as, flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they shall be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, and in the first aid procedure in the event of injury.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Repealer and new section filed –27–85; effective thirtieth day thereafter (Register 85, No. 40).

### § 1511. General Safety Precautions.

(a) No worker shall be required or knowingly permitted to work in an unsafe place, unless for the purpose of making it safe and then only after proper precautions have been taken to protect the employee while doing such work.

(b) Prior to the presence of its employees, the employer shall make a thorough survey of the conditions of the site to determine, so far as practicable, the predictable hazards to employees and the kind and extent of safeguards necessary to prosecute the work in a safe manner in accordance with the relevant parts of Plate A–2–a and b of the Appendix.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new subsection (a) filed 10–18–77; effective thirtieth day thereafter (Register 77, No. 43).
2. Repealer and new section filed 9–2785; effective thirtieth day thereafter (Register 85, No. 40).

### § 1512. Emergency Medical Services.

(a) Provision of Services. Where more than one employer is involved in a single construction project on a given construction site, each employer is responsible to ensure the availability of emergency medical services for its employees. The employers on the project may agree to ensure employee access to emergency medical services for the combined work

force present at the job site. Such an emergency medical service program shall be adequate to service the combined work force present, but only one emergency medical program need be established at such site.

(b) Appropriately Trained Person. Each employer shall ensure the availability of a suitable number of appropriately trained persons to render first aid. Where more than one employer is involved in a single construction project on a given construction site, the employers may form a pool of appropriately trained persons. However, such pool shall be large enough to service the combined work forces of such employers.

EXCEPTION: Engineering contractors or service providers on a job site not engaged in construction activity (e.g., operation of tools, equipment or machinery directly associated with construction) that are in compliance with the requirements of Section 3400(b) of the General Industry Safety Orders.

(c) First-Aid Kit.

(1) Every employer working on or furnishing personnel on a construction project, on line crews and on other short duration or transient jobs shall provide at least one first-aid kit in a weatherproof container. The contents of the first-aid kit shall be inspected regularly to ensure that the expended items are promptly replaced. The contents of the first-aid kit shall be arranged to be quickly found and remain sanitary. First-aid dressings shall be sterile in individually sealed packages for each item. The minimum first-aid supplies shall be determined by an employer-authorized, licensed physician or in accordance with the following Table:

| | *Type of Supply Required by Number of Employees* | | | |
|---|---|---|---|---|
| *Supplies for First Aid* | | | | over |
| Dressings in adequate quantities consisting of: | 1-5 | 6-15 | 16-200 | 200 |
| 1. Adhesive dressings | X | X | X | X |
| 2. Adhesive tape rolls, 1-inch wide | X | X | X | X |
| 3. Eye dressing packet | X | X | X | X |
| 4. 1-inch gauze bandage roll or compress | | X | X | X |
| 5. 2-inch gauze bandage roll or compress | X | X | X | X |
| 6. 4-inch gauze bandage roll or compress | | X | X | X |
| 7. Sterile gauze pads, 2-inch square | X | X | X | X |
| 8. Sterile gauze pads, 4-inch square | X | X | X | X |
| 9. Sterile surgical pads suitable for pressure dressings | | | X | X |
| 10. Triangular bandages | X | X | X | X |
| 11. Safety pins | X | X | X | X |
| 12. Tweezers and scissors | X | X | X | X |
| * Additional equipment in adequate quantities consisting of: | | | | |
| 13. Cotton-tipped applicators | | | X | X |
| 14. Forceps | | | X | X |
| 15. Emesis basin | | | X | X |
| 16. Flashlight | | | X | X |
| 17. Magnifying glass | | | X | X |
| 18. Portable oxygen and its breathing equipment | | | | X |
| 19. Tongue depressors | | | | X |
| Appropriate record forms | X | X | X | X |
| Up-to-date 'standard' or 'advanced' first-aid textbook, manual or equivalent | X | X | X | X |

*To be readily available but not necessarily within the first-aid kit.

(2) Other supplies and equipment, when provided, shall be in accordance with the documented recommendations of an employer-authorized, licensed physician upon consideration of the extent and type of emergency care to be given based upon the anticipated incidence and nature of injuries and illnesses and availability of transportation to medical care.

(3) Drugs, antiseptics, eye irrigation solutions, inhalants, medicines, or proprietary preparations shall not be included in first-aid kits unless specifically approved, in writing, by an employer-authorized, licensed physician.

(d) Informing Employees of Emergency Procedures. Each employer shall inform all of his employees of the procedure to follow in case of injury or illness.

(e) Provision for Obtaining Emergency Medical Services. Proper equipment for the prompt transportation of the injured or ill person to a physician or hospital where emergency care is provided, or an effective communication system for contacting hospitals or other emergency medical facilities, physicians, ambulance and fire services, shall be provided. The telephone numbers of the following emergency services in the area shall be posted near the job telephone, telephone switchboard, or otherwise made available to the employees where no job site telephone exists:

(1) A physician and at least one alternate if available.

(2) Hospitals.

(3) Ambulance services.

(4) Fire-protection services.

(f) Emergency Washing Facilities. Where the eyes or body of any person may be exposed to injurious or corrosive materials, suitable facilities for drenching the body or flushing the eyes with clean water shall be conspicuously and readily accessible.

(g) Emergency Call Systems. A two-way voice emergency communication system shall be installed, for buildings and structures five or more floors or 48 feet or more above or below ground level, to notify persons designated in the emergency medical services plan. The location and condition of the employee shall be able to be communicated over the system. The use of the construction passenger elevators for medical emergencies shall take precedence over all other use.

EXCEPTION: Where jobsite conditions prevent or impair the communication of the required information over the system, an alternative system acceptable to the Division shall be used.

(h) Basket Litter. At least one basket or equally appropriate litter equipped with straps and two blankets, or other similar warm covering, shall be provided for each building or structure five or more floors or 48 feet or more either above or below ground level.

(i) Written Plan. The employer shall have a written plan to provide emergency medical services. The plan shall specify the means of implementing all applicable requirements in this section. When employers form a combined emergency medical services program with appropriately trained persons, one written plan will be considered acceptable to comply with the intent of this subsection.

NOTE: The provisions of Section 1512 are not intended to exclude immediate treatment of minor injuries which do not require the services of a physician.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 11-1-73; effective thirtieth day thereafter (Register 73, No. 44).
2. Repealer and new section filed 11-12-75; effective thirtieth day thereafter (Register 75, No. 46).
3. Amendment filed 5-3-78; effective thirtieth day thereafter (Register 78, No. 18).
4. Amendment of subsection (a)(1) NOTE filed 4-27-79; effective thirtieth day thereafter (Register 79, No. 17).
5. Amendment filed 9-27-85; effective thirtieth day thereafter (Register 85, No. 40).
6. Amendment of subsection (g) filed 11-30-92; operative 12-30-92 (Register 92, No. 49).
7. Amendment of subsection (b) filed 4-13-2000; operative 5-13-2000 (Register 2000, No. 15).

## § 1513. Housekeeping.

(a) During the course of construction, alteration, or repairs, form and scrap lumber with protruding nails and all other debris shall be kept reasonably cleared from work areas, passageways, and stairs in and around buildings or other structures.

(b) The ground area within 6 feet of a building under construction shall be reasonable free from irregularities wherever it is practicable to attain this condition by grading or similar methods, and open ditches shall be bridged to provide passageways at convenient places.

(c) Material storage areas and walkways on the construction site shall be maintained reasonably free of dangerous depressions, obstructions, and debris.

(d) Combustible debris accumulated within the building or structure shall be removed promptly during the course of construction. Safe means shall be provided to expedite such removal.

(e) Flammable or hazardous wastes shall be placed in covered containers separate from the normal debris.

(f) All waste shall be disposed of at intervals determined by the rate of accumulation and capacity of the job site container.

(g) Waste, materials, or tools shall not be thrown from buildings or structures to areas where employee(s) may be located, unless the area where the material falls is guarded by fences, barricades, or other methods/means to prevent employee(s) from entering and being struck by falling objects. Signs shall be posted to warn employees of the hazard.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (b) and new subsections (c) and (d) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Repealer and new section filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).
3. New subsection (g) filed 8–21–92; operative 9–21–92 (Register 92, No. 34).

### § 1514. Personal Protective Devices.

(a) The employer shall require employees to use the required personal protective equipment.

(b) Personal protective equipment required by these orders shall be approved and distinctly marked so as to facilitate identification.

EXCEPTION: Employer manufactured shields, barriers, etc.

(c) Personal protective equipment shall be used in accordance with the manufacturer's instructions.

(d) The employer shall assure that employee–owned personal protective equipment complies with these regulations and that this equipment is maintained in a safe, sanitary condition.

(e) Protectors shall be of such design, fit and durability as to provide adequate protection against the hazards for which they are designed. They shall be reasonably comfortable and shall not unduly encumber the employee's movements.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Amendment of subsection (a) filed 2–6–76; effective thirtieth day thereafter (Register 76, No. 6).
3. Amendment of subsection (a) filed 10–18–77; effective thirtieth day thereafter (Register 77, No. 43).
4. Amendment of subsection (a) NOTE filed 5–3–78; effective thirtieth day thereafter (Register 78, No. 18).
5. Repealer and new section filed 9–27–85; effective thirtieth day thereafter (Register 85. No. 40).

### § 1515. Head Protection.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).
3. Repealer filed 1–28–2000; operative 2–27–2000 (Register 2000, No. 4).

### § 1516. Eye and Face Protection.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Amendment of subsection (a) filed 4–16–80; effective thirtieth day thereafter (Register 80, No. 16).
3. Amendment of subsection (d) filed 6–23–82; effective thirtieth day thereafter (Register 82, No. 26).
4. Repealer and new section filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).
5. Amendment of Tables EP–1 and EP–2 filed 12–3–86; effective thirtieth day thereafter (Register 86, No. 49).
6. Repealer filed 1–28–2000; operative 2–27–2000 (Register 2000, No. 4).

### § 1517. Foot Protection.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).
3. Repealer filed 1–28–2000; operative 2–27–2000 (Register 2000, No. 4).

### § 1518. Protection from Electric Shock.

(a) Suitable protective equipment or devices shall be provided and used on or near energized equipment for the protection of employees where there is a recognized hazard of electrical shock or burns.

(b) When protective insulating equipment is used, it shall comply with the Electrical Safety Orders.

(c) In lieu of other protective equipment, barricades shall be used to provide protection from exposed, energized equipment.

(d) Before work is begun, the employer shall ascertain by inquiry, direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool or machine into physical or electrical contact with the electric power circuit.

(1) Where such circuits exist, a legible marking shall be made indicating the presence and location of the energized circuit(s), or warning signs shall be posted in accordance with Section 3340 of the General Industry Safety Orders.

(2) The employer shall advise the employee of the location of such energized circuits, the hazards involved, and the protective measures to be taken in accordance with Section 1509 of these Orders.

NOTE: Section 1518(d) applies to electrical installations present on the jobsite which do not involve excavations. For electrical installations involving excavations as defined in Section 1540, see Section 1541.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).
3. Amendment of subsection (c) and new subsections (d)–(d)(2) filed 1–27–2006; operative 2–26–2006 (Register 2006, No. 4).

### § 1519. Sanitation.

Personal protective equipment shall be kept clean and in good repair. Safety devices, including protective clothing worn by the employee, shall not be interchanged among the employees until properly cleaned.

EXCEPTION: Safety devices worn over shoes or outer clothing, no part of which contacts the skin of the wearer, such as metal footguards.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer and new section filed 7-12-74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 9-27-85; effective thirtieth day thereafter (Register 85, No. 40).

## § 1520. Hand Protection.

Hand protection shall be required for employees whose work involves unusual and excessive exposure to cuts, burns, harmful physical or chemical agents or radioactive materials which are encountered and capable of causing injury or impairments.

EXCEPTION: Hand protection shall not be required where there is a danger of the hand protection becoming caught in moving machinery or materials.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer and new section filed 7-12-74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 9-5-79; effective thirtieth day thereafter (Register 79, No. 36).
3. Repealer and new section filed 9-27-85; effective thirtieth day thereafter (Register 85, No. 40).

## § 1521. Ear Protection.

Where required by Section 5096(b) of the General Industry Safety Orders, ear protection shall be provided by the employer and the employer shall require employees to wear the ear protection.

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY
1. Repealer and new section filed 7-12-74; effective thirtieth day thereafter (Register 74, No. 28).
2. Amendment filed 2-6-76; effective thirtieth day thereafter (Register 76, No. 6).
3. Amendment filed 6-28-82; effective thirtieth day thereafter (Register 82, No. 27).

## § 1522. Body Protection.

(a) Appropriate body protection shall be required for those employees whose work exposes them to injurious materials.

NOTE: Employees should be cautioned to wash promptly and thoroughly after exposure to injurious substances.

(b) Clothing appropriate for the work being done shall be worn. Loose sleeves, tails, ties, frills, lapels, cuffs, or other loose clothing shall not be worn around machinery in which it might become entangled.

(c) Clothing saturated or impregnated with flammable liquids, corrosive substances, irritants, or oxidizing agents shall be promptly removed, and shall not be worn until cleaned.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer and new section filed 7-12-74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 9-27-85; effective thirtieth day thereafter (Register 85, No. 40).

## § 1523. Illumination.

(a) Construction areas, ramps, corridors, offices, shops and storage areas, etc., shall be lighted to not less than the minimum illumination intensities in the following Table while work is in progress.

Minimum Illumination Intensities In Foot-Candles

| *Foot-Candles* | *Area or Operation* |
|---|---|
| 3 | General construction area lighting low activity. |
| 5 | Outdoor active construction areas, concrete placement, excavation and waste areas, accessways, active storage areas, loading platforms, refueling, and field maintenance areas. |
| 5 | Indoors: warehouses, corridors, hallways, stairways, and exit-ways. |
| 10 | General construction plant and shops (e.g., batch plants, screening plants, mechanical and electrical equipment rooms, carpenter shops, rigging lofts and active storerooms, barracks or living quarters, locker or dressing rooms, mess halls and indoor toilets and workrooms). |
| 10 | Nighttime highway construction work. |
| 30 | *First-aid stations*, infirmaries, and offices. |

NOTE: For areas or operations not covered above, refer to the recommended illumination values contained in the Illuminating Engineering Society (IES) of North America, Committee on Industrial Lighting, American National Standard, (ANSI/IES) Practice for Industrial Lighting, Publication RP-7-1991.

(b) Nighttime highway construction work lighting shall be provided within the work zone to illuminate the task(s) in a manner that will minimize glare to work crews and not interfere with the vision of oncoming motorists (e.g. providing screens, mounting lamps below the top edge of the barrier wall, varying the beam angle, etc.)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer and new section filed 7-12-74; effective thirtieth day thereafter (Register 74, No. 28).
2. Amendment filed 5-21-75; effective thirtieth day thereafter (Register 75, No. 21).
3. Repealer and new section filed 11-14-75; effective thirtieth day thereafter (Register 75, No. 46).
4. New NOTE filed 9-27-85; effective thirtieth day thereafter (Register 85, No. 40).
5. Redesignation and amendment of existing section as subsection (a) and new subsection (b) filed 7-13-2004; operative 8-12-2004 (Register 2004, No. 29).

## § 1524. Water Supply.

(a) Potable Water.

(1) An adequate supply of potable water shall be provided in all places of employment.

NOTE: Additional requirements for the provision of drinking water in outdoor places of employment are contained in Section 3395.

(2) The employer shall take one or more of the following steps to ensure every employee has access to drinking water:

(A) Provide drinking fountains.

(B) Supply single-service cups. Where single-service cups are supplied, a sanitary container for the unused cups and a receptacle for disposing of the used cups shall be provided.

(C) Supply sealed one-time use water containers. Where sealed one-time use water containers are supplied, a receptacle for disposing of the used containers shall be provided.

(D) Ensure re-usable, closable containers are available for individual employee use. Where re-usable containers for individual use are relied upon for compliance with this section, the employer shall ensure the containers are marked to identify the user and maintained in a sanitary condition.

(3) Portable containers used to dispense drinking water to more than one person shall be equipped with a faucet or drinking fountain. Drinking water containers shall be capable of being tightly closed and shall be otherwise designed, constructed and serviced so that sanitary conditions are maintained. Water shall not be dipped from containers.

(4) Any container used to store or dispense drinking water shall be clearly marked as to the nature of its contents and shall not be used for any other purpose.

(5) Re-usable containers for individual use and drinking cups shall not be shared or used in common.

EXCEPTION: Re-usable containers for individual use and drinking cups which are safely and effectively cleaned and sanitized between use by different users.

(b) Nonpotable Water.

(1) Nonpotable water shall not be used for the purposes of drinking, washing, or food preparation.

(2) Outlets for nonpotable water, such as water for industrial or fire-fighting purposes, shall be posted in a manner understandable to all employees to indicate that the water is unsafe and is not to be used for drinking, washing or cooking purposes.

(3) Nonpotable water systems or systems carrying any other nonpotable substance shall be maintained so as to prevent backflow or backsiphonage into a potable water system.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New section filed 7-12-74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 1-7-75; effective thirtieth day thereafter (Register 75, No. 2).
3. Amendment filed 9-27-85; effective thirtieth day thereafter (Register 85, No. 40).

4. Amendment filed 7–30–2008; operative 8–29–2008 (Register 2008, No. 31).

### § 1525. Glass.

(a) Employees shall be protected against the hazard of walking through glass by barriers or by conspicuous durable markings.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 5–3–78; effective thirtieth day thereafter (Register 78, No. 18).
3. New NOTE filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).

### § 1526. Toilets at Construction Jobsites.

(a) A minimum of one separate toilet facility shall be provided for each 20 employees or fraction thereof of each sex. Such facilities may include both toilets and urinals provided that the number of toilets shall not be less than one half of the minimum required number of facilities.

EXCEPTION: Where there are less than 5 employees, separate toilet facilities for each sex are not required provided the toilet facilities can be locked from the inside and contain at least one toilet.

(b) Under temporary field conditions, not less than one toilet shall be available.

(c) Where the provision of water closets is not feasible due to the absence of a sanitary sewer or the lack of an adequate water supply, nonwater carriage disposal facilities shall be provided. Unless prohibited by applicable local regulations, these facilities may include privies (where their use will not contaminate either surface or underground waters), chemical toilets, recirculating toilets, or combustion toilets.

(d) Toilet facilities shall be kept clean, maintained in good working order, designed and maintained in a manner which will assure privacy and provided with an adequate supply of toilet paper.

(e) The requirements of this section shall not apply to mobile crews having readily available transportation to nearby toilet facilities.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 1–7–75; effective thirtieth day thereafter (Register 75, No. 2).
3. Repealer and new section filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).
4. Amendment of subsection (d) filed 1–26–94; operative 2–25–94 (Register 94, No. 4).

### § 1527. Washing Facilities, Food Handling, and Temporary Sleeping Quarters.

(a) Washing Facilities.

(1) General. Washing facilities shall be provided as follows: A minimum of one washing station shall be provided for each twenty employees or fraction thereof. Washing stations provided to comply with this requirement shall at all times:

(A) Be maintained in a clean and sanitary condition;

(B) Have an adequate supply of water for effective washing;

(C) Have a readily available supply of soap or other suitable cleansing agent;

(D) Have a readily available supply of single–use towels or a warm–air blower;

(E) Be located and arranged so that any time a toilet is used, the user can readily wash; and

(F) When provided in association with a nonwater carriage toilet facility in accordance with Section 1526(c),

1. Provide a sign or equivalent method of notice indicating that the water is intended for washing; and

2. Be located outside of the toilet facility and not attached to it.

EXCEPTION to subsection (a)(1)(F)(2.): Where there are less than 5 employees, and only one toilet facility is provided, the required washing facility may be located inside of the toilet facility.

EXCEPTION to subsection (a)(1): Mobile crews having readily available transportation to a nearby toilet and washing facility.

(2) Washing facilities for hazardous substances. Where employees are engaging in the application of paints or coatings, or in other operations involving substances which may be harmful to the employees, washing facilities shall be provided in near proximity to the worksite and shall be so equipped as to enable employees to remove such substances. Facilities provided to comply with this requirement shall at all times:

(A) Be maintained in a clean and sanitary condition;

(B) Have an adequate supply of water sufficient for effective removal of the hazardous substance from skin surfaces; and

(C) Have a readily available supply of soap, and where necessary to effect removal, special cleansing compounds designed specifically for removal of the hazardous substance from skin surfaces; and

(D) Have a readily available supply of single use towels or a warm–air blower.

(3) Showers. When showering is required by the employer or these orders, the shower shall meet the requirements of Section 3366(f).

(b) Food Handling. All food service facilities and operations shall meet the applicable laws, ordinances, and regulations of the jurisdictions in which they are located

(c) Temporary Sleeping Quarters. When temporary sleeping quarters are provided, they shall be heated, ventilated, and lighted and shall meet the applicable laws, ordinances and regulations of the jurisdictions in which they are located.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 1–7–75; effective thirtieth day thereafter (Register 75, No. 2).
2. Repealer and new section filed 9–27–85; effective thirtieth day thereafter (Register 85, No. 40).
3. Amendment filed 1–6–2003; operative 2–5–2003 (Register 2003, No. 2).

## Article 4. Dusts, Fumes, Mists, Vapors, and Gases

### § 1528. General.

(a) Whenever an oxygen deficient atmosphere or harmful dusts, fumes, mists, vapors, or gases exist or are produced in the course of employment in quantities giving rise to harmful exposure of employees, such hazards shall be controlled by removing the employees from exposure to the hazard, by limiting the daily exposure of employees to the hazard, or by application of engineering controls. Whenever such controls are not practicable or fail to achieve full compliance, respiratory protective equipment shall be provided as prescribed in Section 1531.

(b) Employees exposed to hazardous substances shall be protected as required by Group 16 of the General Industry Safety Orders.

(c) When ventilation is used as an engineering control method, the system shall be installed and operated according to the requirements of this Article.

(d) The spraying of any substance containing any amount of asbestos in or upon a building or other structure during its construction, alteration or repair is prohibited.

EXCEPTIONS:

1. Exterior and interior coatings and laminating resins containing encapsulated asbestos fibers bound within the finished product from manufacture through application.
2. Cold process asphalt roof coatings.
3. Substances containing less than one–quarter of 1 percent asbestos solely as a result of naturally occurring impurities in the substance or its components.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 25910, Health and Safety Code; and Section 142.3, Labor Code.

HISTORY

1. Renumbering from Section 1530 and amendment filed 6–18–75; effective thirtieth day thereafter (Register 75, No. 25).
2. New subsection (c) filed 11–1–77 as an emergency; effective upon filing (Register 77, No. 45).
3. Certificate of Compliance filed 1–17–78 (Register 78, No. 3).
4. Repealer and new subsection (c) filed 5–2–79 as an emergency; effective upon filing. Certificate of Compliance included (Register 79, No. 17).

5. Amendment of subsections (a) and (b) filed 9–6–79 as an emergency; effective upon filing (Register 79, No. 36). A Certificate of Compliance must be filed within 120 days or emergency language will be repealed on 1–4–80.
6. Reinstatement of subsections (a) and (b) as existed prior to emergency amendment filed 9–6–79 by operation of Section 11422.1, Government Code (Register 80, No. 3).
7. Amendment of subsection (a) filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
8. Amendment filed 12–13–84; effective thirtieth day thereafter (Register 84, No. 50).

## § 1529. Asbestos.

(a) Scope and application.

(1) This section regulates asbestos exposure in all construction work as defined in Section 1502 including but not limited to the following:

(A) Demolition or salvage of structures where asbestos is present;

(B) Removal or encapsulation of materials containing asbestos;

(C) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos;

(D) Installation of products containing asbestos;

(E) Asbestos spill/emergency cleanup;

(F) Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed;

(G) Excavation which may involve exposure to asbestos as a natural constituent which is not related to asbestos mining and milling activities;

(H) Routine facility maintenance; and

(I) Erection of new electric transmission and distribution lines and equipment, and alteration, conversion and improvement of the existing transmission and distribution lines and equipment.

(2) Whenever employee exposures to asbestos, as defined in subsection (b) of this section consist only of exposure to tremolite, anthophyllite, and actinolite in the nonasbestiform mineral habit, the provisions of Section 5208.1 shall apply.

(3) The provisions of this section are subject to the requirements of the Occupational Carcinogen Control Act of 1976 (Labor Code, Division 5, Part 10).

(4) Coverage under this Section shall be based on the nature of the work operation involving asbestos exposure.

(b) Definitions.

"Aggressive–method" means removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

"Amended water" means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

"Asbestos" includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. For purposes of this standard, "asbestos" includes PACM, as defined below.

"Asbestos–containing material (ACM)", means any material containing more than one percent asbestos.

"Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"Authorized person" means any person authorized by the employer and required by work duties to be present in regulated areas.

"Building/facility owner" is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

"Certified Industrial Hygienist (CIH)" means one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

"Chief" means the Chief of the Division of Occupational Safety and Health, P.O. Box 420603, San Francisco, CA 94142.

"Class I asbestos work" means activities involving the removal of TSI and surfacing ACM and PACM.

"Class II asbestos work" means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos–containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

"Class III asbestos work" means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

"Class IV asbestos work" means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

"Clean room" means an uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

"Closely resemble" means that the major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.

"Competent person" means, in addition to one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them, one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them: in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR part 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2). Note: For operations involving more than 100 square feet of asbestos containing construction material as defined in subsection (r) of this section the competent person may fulfill the requirement contained in Section 341.9 to specify a certified supervisor for asbestos related work.

"Critical barrier" means one or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

"Decontamination area" means an enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

"Demolition" means the wrecking or taking out of any load– supporting structural member and any related razing, removing, or stripping of asbestos products.

"Director" means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"Disturbance" means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

"Employee exposure" means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

"Equipment room (change room)" means a contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

"Fiber" means a particulate form of asbestos, 5 micrometers or longer, with a length–to–diameter ratio of at least 3 to 1.

"Glovebag" means an impervious plastic bag–like enclosure affixed around not more than a 60 x 60 inch asbestos–containing material, with

glove–like appendages through which material and tools may be handled.

"High–efficiency particulate air (HEPA) filter" means a filter capable of trapping and retaining at least 99.97 percent of all mono–dispersed particles of 0.3 micrometers in diameter.

"Homogeneous area" means an area of surfacing material or thermal system insulation that is uniform in color and texture.

"Industrial hygienist" means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

"Intact" means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

"Modification" for purposes of subsection (g)(6), means a changed or altered procedure, material or component of a control system, which replaces a procedure, material or component of a required system. Omitting a procedure or component, or reducing or diminishing the stringency or strength of a material or component of the control system is not a "modification" for purposes of subsection (g)(6) of this section.

"Negative Initial Exposure Assessment" means a demonstration by the employer, which complies with the criteria in subsection (f)(2)(C) of this section, that employee exposure during an operation is expected to be consistently below the PELs.

"PACM" means "presumed asbestos–containing material".

"Presumed Asbestos Containing Material" means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to subsection (k)(5) of this section.

"Project Designer" means a person who has successfully completed the training requirements for an abatement project designer established by 40 U.S.C. Sec. 763.90(g).

"Regulated area" means: an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit. Requirements for regulated areas are set out in subsection (e) of this section.

"Removal" means all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

"Renovation" means the modifying of any existing structure, or portion thereof.

"Repair" means overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

"Surfacing material" means material that is sprayed, troweled–on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

"Surfacing ACM" means surfacing material which contains more than 1% asbestos.

"Thermal system insulation (TSI)" means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

"Thermal system insulation ACM" is thermal system insulation which contains more than 1% asbestos.

(c) Permissible exposure limits (PELS).

(1) Time–weighted average limit (TWA). The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time–weighted average (TWA), as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(2) Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(d) Multi–employer worksites.

(1) On multi–employer worksites, an employer performing work requiring the establishment of a regulated area shall inform other employers on the site of the nature of the employer's work with asbestos and/or PACM, of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos.

(2) Asbestos hazards at a multi–employer work site shall be abated by the contractor who created or controls the source of asbestos contamination. For example, if there is a significant breach of an enclosure containing Class I work, the employer responsible for erecting the enclosure shall repair the breach immediately.

(3) In addition, all employers of employees exposed to asbestos hazards shall comply with applicable protective provisions to protect their employees. For example, if employees working immediately adjacent to a Class I asbestos job are exposed to asbestos due to the inadequate containment of such job, their employer shall either remove the employees from the area until the enclosure breach is repaired; or perform an initial exposure assessment pursuant to subsection (f) of this section.

(4) All employers of employees working adjacent to regulated areas established by another employer on a multi–employer work–site, shall take steps on a daily basis to ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the primary asbestos contractor to assure that asbestos fibers do not migrate to such adjacent areas.

(5) All general contractors on a construction project which includes work covered by this standard shall be deemed to exercise general supervisory authority over the work covered by this standard, even though the general contractor is not qualified to serve as the asbestos "competent person" as defined by subsection (b) of this section. As supervisor of the entire project, the general contractor shall ascertain whether the asbestos contractor is in compliance with this standard, and shall require such contractor to come into compliance with this standard when necessary.

(e) Regulated areas.

(1) All Class I, II and III asbestos work shall be conducted within regulated areas. All other operations covered by this standard shall be conducted within a regulated area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed a PEL. Regulated areas shall comply with the requirements of subsections (2), (3), (4), and (5) of this subsection.

(2) Demarcation. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed pursuant to the requirements of subsection (k)(7) of this section.

(3) Access. Access to regulated areas shall be limited to authorized persons and to persons authorized by the Chief or Director.

(4) Respirators. All persons entering a regulated area where employees are required pursuant to subsection (h)(1) of this section to wear respirators shall be supplied with a respirator selected in accordance with subsection (h)(2) of this section.

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

(6) Competent Persons. The employer shall ensure that all asbestos work performed within regulated areas is supervised by a competent person, as defined in subsection (b) of this section. The duties of the competent person are set out in subsection (o) of this section.

(f) Exposure assessments and monitoring.

(1) General monitoring criteria.

(A) Each employer who has a workplace or work operation where exposure monitoring is required under this section shall perform monitor-

ing to determine accurately the airborne concentrations of asbestos to which employees may be exposed.

(B) Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8–hour TWA and 30–minute short–term exposures of each employee.

(C) Representative 8–hour TWA employee exposure shall be determined on the basis of one or more samples representing full–shift exposure for employees in each work area. Representative 30–minute short–term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

(2) Initial Exposure Assessment.

(A) Each employer who has a workplace or work operation covered by this standard shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment," and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

[The next page is 164.3.]

(B) Basis of Initial Exposure Assessment: Unless a negative exposure assessment has been made pursuant to subsection (f)(2)(C) of this section, the initial exposure assessment shall, if feasible, be based on monitoring conducted pursuant to subsection (f)(1)(C) of this section. The assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to subsection (f)(2)(C) of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

(C) Negative Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to the following criteria:

1. Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those work conditions having the greatest potential for releasing asbestos; or

2. Where the employer has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job, the monitoring and analysis were performed in compliance with the asbestos standard in effect; and the data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or

3. The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

(3) Periodic monitoring.

(A) Class I and II operations. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the employer pursuant to subsection (f)(2)(C) of this section, has made a negative exposure assessment for the entire operation.

(B) All operations under the standard other than Class I and II operations. The employer shall conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.

(C) Exception: When all employees required to be monitored daily are equipped with supplied-air respirators operated in the pressure demand mode, or other positive pressure mode respirator, the employer may dispense with the daily monitoring required by this subsection. However, employees performing class I work using a control method which is not listed in subsection (g)(4)(A), (B), or (C) of this section or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

(4) Termination of monitoring. (A) If the periodic monitoring required by subsection (f)(3) of this section reveals that employee exposures, as indicated by statistically reliable measurements, are below the permissible exposure limit and excursion limit the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(B) Additional monitoring. Notwithstanding the provisions of subsections (f)(2), (f)(3), and (f)(4) of this section, the employer shall institute the exposure monitoring required under subsection (f)(3) of this section whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

(5) Employee Notification of Monitoring Results.

(A) As soon as possible but not later than 5 working days following receipt of monitoring results required by this section, the employer shall notify affected employees of the monitoring results.

(B) The employer shall notify affected employees of the results of monitoring representing the employee's exposure in writing either individually or by posting at a centrally located place that is accessible to affected employees.

(C) The written notification required by subsection (f)(5)(A) of this section shall include the corrective action being taken by the employer to reduce employee exposure to or below the PEL and/or excursion limit wherever monitoring results have indicated that the PEL and/or excursion limit has been exceeded.

(6) Observation of monitoring.

(A) The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with this section.

(B) When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

(g) Methods of compliance

(1) Engineering controls and work practices for all operations covered by this section. The employer shall use the following engineering controls and work practices in all operations covered by this section, regardless of the levels of exposure:

(A) Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM and PACM, except as provided in subsection (g)(8)(B) of this section in the case of roofing material.

(B) Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, except where employers demonstrate that the use of wet methods is infeasible due to for example, the creation of electrical hazards, equipment malfunction, and, in roofing, except as provided in subsection (g)(8)(B) of this section; and

(C) Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers except in roofing operations, where the procedures specified in subsection (g)(8)(B) of this section apply.

(2) In addition to the requirements of subsection (g)(1) of this section, the employer shall use the following control methods to achieve compliance with the TWA permissible exposure limit and excursion limit prescribed by subsection (c) of this section;

(A) Local exhaust ventilation equipped with HEPA filter dust collection systems;

(B) Enclosure or isolation of processes producing asbestos dust;

(C) Ventilation of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;

(D) Use of other work practices and engineering controls that the Assistant Secretary can show to be feasible.

(E) Wherever the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the permissible exposure limit and/or excursion limit prescribed in subsection (c) of this section, the employer shall use them to reduce employee exposure to the lowest levels attainable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of subsection (h) of this section.

(3) Prohibitions. The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

(A) High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

(B) Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

(C) Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM.

(D) Employee rotation as a means of reducing employee exposure to asbestos.

(4) Class I Requirements. In addition to the provisions of subsections (g)(1) and (2) of this section, the following engineering controls and work practices and procedures shall be used.

(A) All Class I work, including the installation and operation of the control system shall be supervised by a competent person as defined in subsection (b) of this section;

(B) For all Class I jobs involving the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material; for all other Class I jobs, where the employer cannot produce a negative exposure assessment pursuant to subsection (f)(2)(C) of this section, or where employees are working in areas adjacent to the regulated area, while the Class I work is or being performed, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

1. Critical barriers shall be placed over all the openings to the regulated area, except where activities are performed outdoors; or

2. The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible asbestos dust; and perimeter area monitoring showing that clearance levels contained in 40 CFR Part 763, Subpart E, of the EPA Asbestos in Schools Rule are met, or that perimeter area levels, measured by Phase Contrast Microscopy (PCM) are no more than background levels representing the same area before the asbestos work began. The results of such monitoring shall be made known to the employer no later than 24 hours from the end of the work shift represented by such monitoring.

EXCEPTION: For work completed outdoors where employees are not working in areas adjacent to the regulated areas, this subsection (g)(4)(B) is satisfied when the specific control methods in subsection (g)(5) of this section are used.

(C) For all Class I jobs, HVAC systems shall be isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent;

(D) For all Class I jobs, impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(E) For all Class I jobs, all objects within the regulated area shall be covered with impermeable dropcloths or plastic sheeting which is secured by duct tape or an equivalent.

(F) For all Class I jobs where the employer cannot produce a negative exposure assessment, or where exposure monitoring shows that a PEL is exceeded, the employer shall ventilate the regulated area to move contaminated air away from the breathing zone of employees toward a HEPA filtration or collection device.

(5) Specific control methods for Class I work. In addition, Class I asbestos work shall be performed using one or more of the following control methods pursuant to the limitations stated below:

(A) Negative Pressure Enclosure (NPE) systems: NPE systems may be used where the configuration of the work area does not make the erection of the enclosure infeasible, with the following specifications and work practices.

1. Specifications:

a. The negative pressure enclosure (NPE) may be of any configuration.

b. At least 4 air changes per hour shall be maintained in the NPE.

c. A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements.

d. The NPE shall be kept under negative pressure throughout the period of its use, and

e. Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

2. Work Practices:

a. Before beginning work within the enclosure and at the beginning of each shift, the NPE shall be inspected for breaches and smoke- tested for leaks, and any leaks sealed.

b. Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.

(B) Glove bag systems my be used to remove PACM and/or ACM from straight runs of piping and elbows and other connections with the following specifications and work practices:

1. Specifications:

a. Glovebags shall he made of 6 mil thick plastic and shall be seamless at the bottom.

b. Glovebags used on elbows and other connections must be designed for that purpose and used without modifications.

2. Work Practices:

a. Each glovebag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.

b. Glovebags shall be smoke-tested for leaks and any leaks sealed prior to use.

c. Glovebags may be used only once and may not be moved.

d. Glovebags shall not be used on surfaces whose temperature exceeds 150°F.

e. Prior to disposal, glovebags shall be collapsed by removing air within them using a HEPA vacuum.

f. Before beginning the operation, loose and friable material adjacent to the glovebag/box operation shall be wrapped and sealed in two layers of six mil plastic or otherwise rendered intact,

g. Where system uses attached waste bag, such bag shall be connected to collection bag using hose or other material which shall withstand pressure of ACM waste and water without losing its integrity:

h. Sliding valve or other device shall separate waste bag from hose to ensure no exposure when waste bag is disconnected:

i. At least two persons shall perform Class I glovebag removal operations.

(C) Negative Pressure Glove Bag Systems. Negative pressure glove bag systems may be used to remove ACM or PACM from piping.

1. Specifications: In addition to specifications for glove bag systems above, negative pressure glove bag systems shall attach HEPA vacuum systems or other devices to bag to prevent collapse during removal.

2. Work Practices:

a. The employer shall comply with the work practices for glove bag systems in subsection (g)(5)(B)2.d. of this section.

b. The HEPA vacuum cleaner or other device used to prevent collapse of bag during removal shall run continually during the operation until it is completed at which time the bag shall be collapsed prior to removal of the bag from the pipe.

c. Where a separate waste bag is used along with a collection bag and discarded after one use, the collection bag my be reused if rinsed clean with amended water before reuse.

(D) Negative Pressure Glove Box Systems: Negative pressure glove boxes may be used to remove ACM or PACM from pipe runs with the following specifications and work practices.

1. Specifications:

a. Glove boxes shall be constructed with rigid sides and made from metal or other material which can withstand the weight of the ACM and PACM and water used during removal:

b. A negative pressure generator shall be used to create negative pressure in the system:

c. An air filtration unit shall be attached to the box:

d. The box shall be fitted with gloved apertures:

e. An aperture at the base of the box shall serve as a bagging outlet for waste ACM and water:

f. A back-up generator shall be present on site:

g. Waste bags shall consist of 6 mil thick plastic double-bagged before they are filled or plastic thicker than 6 mil.

2. Work practices:

a. At least two persons shall perform the removal:

b. The box shall be smoke-tested for leaks and any leaks sealed prior to each use.

c. Loose or damaged ACM adjacent to the box shall be wrapped and sealed in two layers of 6 mil plastic prior to the job, or otherwise made intact prior to the job.

d. A HEPA filtration system shall be used to maintain pressure barrier in box.

(E) Water Spray Process System. A water spray process system may be used for removal of ACM and PACM from cold line piping if, employees carrying out such process have completed a 40-hour separate training course in its use, in addition to training required for employees performing Class I work. The system shall meet the following specifications and shall be performed by employees using the following work practices.

1. Specifications:

a. Piping shall be surrounded on 3 sides by rigid framing,

b. A 360 degree water spray, delivered through nozzles supplied by a high pressure separate water line, shall be formed around the piping.

c. The spray shall collide to form a fine aerosol which provides a liquid barrier between workers and the ACM and PACM.

2. Work Practices:

a. The system shall be run for at least 10 minutes before removal begins.

b. All removal shall take place within the water barrier.

c. The system shall be operated by at least three persons, one of whom shall not perform removal, but shall check equipment, and ensure proper operation of the system.

d. After removal, the ACM and PACM shall be bagged while still inside the water barrier.

(F) A small walk-in enclosure which accommodates no more than two persons (mini-enclosure) may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices.

1. Specifications:

a. The fabricated or job-made enclosure shall be constructed of 6 mil plastic or equivalent:

b. The enclosure shall be placed under negative pressure by means of a HEPA filtered vacuum or similar ventilation unit:

2. Work practices:

a. Before use, the mini-enclosure shall be inspected for leaks and smoke tested to detect breaches, and any breaches sealed.

b. Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed.

c. During use, air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

(6) Alternative control methods for Class I work. Class I work may be performed using a control method which is not referenced in subsection (g)(5) of this section, or which modifies a control method referenced in subsection (g)(5) of this section, if the following provisions are complied with:

(A) The control method shall enclose, contain or isolate the processes or source of airborne asbestos dust, or otherwise capture or redirect such dust before it enters the breathing zone of employees.

(B) A certified industrial hygienist or licensed professional engineer who is also qualified as a project designer as defined in subsection (b) of this section, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst-case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by clearance sampling which meets the requirements of EPA's Asbestos in Schools rule issued under AHERA, or perimeter monitoring which meets the criteria in subsection (g)(4)(B)2. of this section.

1. Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less, the evaluation required in subsection (g)(6) of this section may be performed by a "competent person", and may omit consideration of perimeter or clearance monitoring otherwise required.

2. The evaluation of employee exposure required in subsection (g)(6) of this section, shall include and be based on sampling and analytical data representing employee exposure during the use of such method under worst-case conditions and by employees whose training and experience are equivalent to employees who are to perform the current job.

(7) Work Practices and Engineering Controls for Class II work.

(A) All Class II work, shall be supervised by a competent person as defined in subsection (b) of this section.

(B) For all indoor Class II jobs, where the employer has not produced a negative exposure assessment pursuant to subsection (f)(2)(C) of this section, or where during the job, changed conditions indicate there may be exposure above the PEL or where the employer does not remove the ACM in a substantially intact state, the employer shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

1. Critical barriers shall be placed over all openings to the regulated area; or,

2. The employer shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area monitoring or clearance monitoring which meets the criteria set out in subsection (g)(4)(B)2. of this section.

(C) Impermeable dropcloths shall be placed on surfaces beneath all removal activity;

(D) All Class II asbestos work shall be performed using the work practices and requirements set out above in subsection (g)(1)(A) through (C) of this section.

(8) Additional Controls for Class II work. Class II asbestos work shall also be performed by complying with the work practices and controls designated for each type of asbestos work to be performed, set out in this subsection. Where more than one control method may be used for a type of asbestos work, the employer may choose one or a combination of designated control methods. Class II work also may be performed using a method allowed for Class I work, except that glove bags and glove boxes are allowed if they fully enclose the Class II material to be removed.

(A) For removing vinyl and asphalt flooring materials which contain ACM or for which, in buildings constructed no later than 1980, the employer has not verified the absence of ACM pursuant to subsection (g)(8)(A)9. of this section. The employer shall ensure that employees comply with the following work practices and that employees are trained in these practices pursuant to subsection (k)(9) of this section:

1. Flooring or its backing shall not be sanded.

2. Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean floors.

3. Resilient sheeting shall be removed by cutting with wetting of the snip point and wetting during delamination. Rip-up of resilient sheet floor material is prohibited.

4. All scraping of residual adhesive and/or backing shall be performed using wet methods.

5. Dry sweeping is prohibited.

6. Mechanical chipping is prohibited unless performed in a negative pressure enclosure which meets the requirements of subsection (g)(5)(A) of this section.

7. Tiles shall be removed intact, unless the employer demonstrates that intact removal is not possible.

8. When tiles are heated and can be removed intact, wetting may be omitted.

9. Resilient flooring material including associated mastic and backing shall be assumed to be asbestos-containing unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques.

(B) For removing roofing material which contains ACM the employer shall ensure that the following work practices are followed:

1. Roofing material shall be removed in an intact state to the extent feasible.

2. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards.

3. Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.

4. When removing built-up roofs with asbestos-containing roofing felts and an aggregate surface using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. When removing built-up roofs with asbestos containing roofing felts and a smooth surface using a power roof cutter, the dust resulting from the cutting operation shall be collected either by a HEPA dust collector or HEPA vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still-wet dust and debris left along the cut line. The dust and debris shall be immediately bagged or placed in covered containers.

5. Asbestos-containing material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall he lowered to the ground via covered, dust-tight chute, crane or hoist:

a. Any ACM that is not intact shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift. While the material remains on the roof it shall either be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting.

b. Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift.

6. Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust.

7. Roof level heating and ventilation air intake sources shall be isolated or the ventilation system shall he shut down.

8. Notwithstanding any other provision of this section, removal or repair of sections of intact roofing less than 25 square feet in area does not require use of wet methods or HEPA vacuuming as long as manual methods which do not render the material nonintact are used to remove the material and no visible dust is created by the removal method used. In determining whether a job involves less than 25 square feet, the employer shall include all removal and repair work performed on the same roof on the same day.

(C) When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM on building exteriors (other than roofs, where subsection (g)(8)(B) of this section applies) the employer shall ensure that the following work practices are followed:

1. Cutting, abrading or breaking siding, shingles, or transite panels, shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release cannot be used.

2. Each panel or shingle shall be sprayed with amended water prior to removal.

3. Unwrapped or unbagged panels or shingles shall be immediately lowered to the ground via covered dust-tight chute, crane or hoist, or placed in an impervious waste bag or wrapped in plastic sheeting and lowered to the ground no later than the end of the work shift.

4. Nails shall be cut with flat, sharp instruments.

(D) When removing gaskets containing ACM, the employer shall ensure that the following work practices are followed:

1. If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken within a glovebag as described in subsection (g)(5)(B) of this section.

2. The gasket shall be immediately placed in a disposal container.

3. Any scraping to remove residue must be performed wet.

(E) When performing any other Class II removal of asbestos containing material for which specific controls have not been listed in subsections (g)(8)(A) through (D) of this section, the employer shall ensure that the following work practices are complied with.

1. The material shall be thoroughly wetted with amended water prior to and during its removal.

2. The material shall be removed in an intact state unless the employer demonstrates that intact removal is not possible.

3. Cutting, abrading or breaking the material shall be prohibited unless the employer can demonstrate that methods less likely to result in asbestos fiber release are not feasible.

4. Asbestos-containing material removed, shall be immediately bagged or wrapped, or kept wetted until transferred to a closed receptacle, no later than the end of the work shift.

(F) Alternative Work Practices and Controls. Instead of the work practices and controls listed in subsection (g)(8)(A) through (E) of this section, the employer may use different or modified engineering and work practice controls if the following provisions are complied with.

1. The employer shall demonstrate by data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used, that employee exposure will not exceed the PELs under any anticipated circumstances.

2. A competent person shall evaluate the work area, the projected work practices and the engineering controls, and shall certify in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of this standard. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

(9) Work Practices and Engineering Controls for Class III asbestos work. Class III asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.

(A) The work shall be performed using wet methods.

(B) To the extent feasible, the work shall be performed using local exhaust ventilation.

(C) Where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing material, the employer shall use impermeable dropcloths, and shall isolate the operation using mini-enclosures or glove bag systems pursuant to subsection (g)(5) of this section or another isolation method.

(D) Where the employer does not produce a "negative exposure assessment" for a job, or where monitoring results show the PEL has been

exceeded, the employer shall contain the area using impermeable dropcloths and plastic barriers or their equivalent, or shall isolate the operation using a control system listed in and in compliance with subsection (g)(5) of this section.

(E) Employees performing Class III jobs, which involve the disturbance of thermal system insulation or surfacing material, or where the employer does not produce a "negative exposure assessment" or where monitoring results show a PEL has been exceeded, shall wear respirators which are selected, used and fitted pursuant to provisions of subsection (h) of this section.

(10) Class IV asbestos work. Class IV asbestos jobs shall be conducted by employees trained pursuant to the asbestos awareness training program set out in subsection (k)(9) of this section. In addition, all Class IV jobs shall be conducted in conformity with the requirements set out in subsection (g)(1) of this section, mandating wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM.

(A) Employees cleaning up debris and waste in a regulated area where respirators are required shall wear respirators which are selected, used and fitted pursuant to provisions of subsection (h) of this section.

(B) Employers of employees who clean up waste and debris in, and employers in control of, areas where friable thermal system insulation or surfacing material is accessible, shall assume that such waste and debris contain asbestos.

(11) Alternative methods of compliance for installation, removal, repair, and maintenance of certain roofing and pipeline coating materials. Notwithstanding any other provision of this section, an employer who complies with all provisions of this subsection (g)(11) when installing, removing, repairing, or maintaining intact pipeline asphaltic wrap, or roof cements, mastics, coatings, or flashings which contain asbestos fibers encapsulated or coated by bituminous or resinous compounds shall be deemed to be in compliance with this section. If an employer does not comply with all provisions of this subsection (g)(11), or if during the course of the job the material does not remain intact, the provisions of subsection (g)(8) of this section apply instead of this subsection (g)(11).

(A) Before work begins and as needed during the job, a competent person who is capable of identifying asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate such hazards, shall conduct an inspection of the worksite and determine that the roofing material is intact and will likely remain intact.

(B) All employees performing work covered by this subsection (g)(11) shall be trained in a training program that meets the requirements of subsection (k)(9)(H).

(C) The material shall not be sanded, abraded, or ground. Manual methods which do not render the material non-intact shall be used.

(D) Material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist. All such material shall be removed from the roof as soon as is practicable, but in any event no later than the end of the work shift.

(E) Where roofing products which have been labeled as containing asbestos pursuant to subsection (k)(8) of this section are installed on non-residential roofs during operations covered by this subsection (g)(11), the employer shall notify the building owner of the presence and location of such materials no later than the end of the job.

(F) All removal or disturbance of pipeline asphaltic wrap shall be performed using wet methods.

(h) Respiratory protection.

(1) General. For employees who use respirators required by this section, the employer must provide respirators that comply with the requirements of this subsection. Respirators must be used during:

(A) Class I asbestos work.

(B) Class II asbestos work where the ACM is not removed in a substantially intact state,

(C) Class II and III asbestos work which is not performed using wet methods, except for removal of ACM from sloped roofs when a negative exposure assessment has been made and the ACM is removed in an intact state.

(D) Class II and III asbestos work for which a "negative exposure assessment" has not been conducted.

(E) Class III asbestos work when TSI or surfacing ACM or PACM is being disturbed.

(F) Class IV asbestos work performed within regulated areas where employees performing other work are required to use respirators.

(G) Work operations covered by this section where employees are exposed above the TWA or excursion limit.

(H) Emergencies.

(2) Respirator program.

(A) The employer must implement a respiratory protection program in accordance with section 5144(b) through (d) (except (d)(1)(C)), and (f) through (m).

(B) No employee shall be assigned to asbestos work that requires respirator use if, based on their most recent medical examination, the examining physician determines that the employee will be unable to function normally while using a respirator, or that the safety or health of the employee or other employees will be impaired by the employee's respirator use. Such employees must be assigned to another job or given the opportunity to transfer to a different position that they can perform. If such a transfer position is available, it must be with the same employer, in the same geographic area, and with the same seniority, status, rate of pay, and other job benefits the employee had just prior to such transfer.

(3) Respirator selection.

(A) The employer shall select, and provide to employees, the appropriate respirators as specified in Section 5144(d)(3)(A)1; however, employers shall not select or use filtering facepiece respirators for use against asbestos fibers.

(B) The employer shall provide HEPA filters for powered and non-powered air-purifying respirators.

(C) The employer shall provide a tight fitting powered, air- purifying respirator in lieu of any negative-pressure respirator selected according to subsection (h)(3)(A) whenever:

1. An employee chooses to use this type of respirator; and

2. This respirator will provide adequate protection to the employee.

(D) The employer shall provide a half-mask air purifying respirator, other than a filtering facepiece respirator, equipped with high efficiency filters whenever the employee performs:

1. Class II and III asbestos work and a negative exposure assessment has not been conducted by the employer;

2. Class III jobs where TSI or surfacing ACM or PACM is being disturbed.

(E) In addition to the above selection criteria, when employees are in a regulated area where Class I work is being performed, a negative exposure assessment of the area has not been produced, and the exposure assessment of the area indicates the exposure level will exceed 1 f/cc as an 8-hour time weighted average, employers must provide the employees with a full facepiece supplied-air respirator operated in the pressure-demand mode and equipped with an auxiliary positive pressure self-contained breathing apparatus. When the exposure assessment of the area indicates the exposure level will not exceed 1 f/cc as an 8-hour time weighted average, employers must provide the employees with one of the following respirators:

1. A tight-fitting powered air-purifying respirator equipped with high efficiency filters;

2. A full facepiece supplied air-respirator operated in the pressure-demand mode equipped with HEPA egress cartridges or an auxiliary positive-pressure, self-contained breathing apparatus (SCBA); or

3. A full facepiece supplied-air respirator operated in the pressure demand mode equipped with an auxiliary positive pressure self-contained breathing apparatus.

(i) Protective clothing.

(1) General. The employer shall provide or require the use of protective clothing, such as coveralls or similar whole-body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos that exceed the TWA and/or excursion limit prescribed in subsection (c) of this section, or for which a required negative exposure assessment is not produced, and for any employee performing Class I operations which involve the removal of over 25 linear or 10 square feet of TSI or surfacing ACM and PACM. The employer shall prohibit the removal of asbestos from protective clothing and equipment by blowing, shaking, or brushing.

(2) Laundering.

(A) The employer shall ensure that laundering of contaminated clothing is done so as to prevent the release of airborne asbestos in excess of the TWA or excursion limit prescribed in subsection (c) of this section.

(B) Any employer who gives contaminated clothing to another person for laundering shall inform such person of the requirement in subsection (i)(2)(A) of this section to effectively prevent the release of airborne asbestos in excess of the TWA and excursion limit prescribed in subsection (c) of this section.

(3) Contaminated clothing. Contaminated clothing shall be transported in sealed impermeable bags, or other closed, impermeable containers, and be labeled in accordance with subsection (k) of this section.

(4) Inspection of protective clothing.

(A) The competent person shall examine worksuits worn by employees at least once per workshift for rips or tears that may occur during performance of work.

(B) When rips or tears are detected while an employee is working, rips and tears shall be immediately mended, or the worksuit shall be immediately replaced.

(j) Hygiene facilities and practices for employees.

(1) Requirements for employees performing Class I asbestos jobs involving over 25 linear or 10 square feet of TSI or surfacing ACM and PACM.

(A) Decontamination areas: the employer shall establish a decontamination area that is adjacent and connected to the regulated area for the decontamination of such employees. The decontamination area shall consist of an equipment room, shower area, and clean room in series. The employer shall ensure that employees enter and exit the regulated area through the decontamination area.

1. Equipment room. The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.

2. Shower area. Shower facilities shall be provided which comply with Section 3366(f) of the General Industry Safety Orders, unless the employer can demonstrate that they are not feasible. The showers shall be adjacent both to the equipment room and the clean room, unless the employer can demonstrate that this location is not feasible. Where the employer can demonstrate that it is not feasible to locate the shower between the equipment room and the clean room, or where the work is performed outdoors, the employers shall ensure that employees:

A. Remove asbestos contamination from their worksuits in the equipment room using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or

B. Remove their contaminated worksuits in the equipment room, then don clean worksuits, and proceed to a shower that is not adjacent to the work area.

3. Clean change room. The clean room shall be equipped with a locker or appropriate storage container for each employee's use. When the employer can demonstrate that it is not feasible to provide a clean change area adjacent to the work area or where the work is performed outdoors, the employer may permit employees engaged in Class I asbestos jobs to clean their protective clothing with a portable HEPA-equipped vacuum before such employees leave the regulated area. Following showering, such employees however must then change into street clothing in clean change areas provided by the employer which otherwise meet the requirements of this section.

(B) Decontamination area entry procedures. The employer shall ensure that employees:

1. Enter the decontamination area through the clean room;

2. Remove and deposit street clothing within a locker provided for their use; and

3. Put on protective clothing and respiratory protection before leaving the clean room.

4. Before entering the regulated area, the employer shall ensure that employees pass through the equipment room.

(C) Decontamination area exit procedures. The employer shall ensure that:

1. Before leaving the regulated area, employees shall remove all gross contamination and debris from their protective clothing.

2. Employees shall remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers.

3. Employees shall not remove their respirators in the equipment room.

4. Employees shall shower prior to entering the clean room.

5. After showering, employees shall enter the clean room before changing into street clothes.

(D) Lunch Areas. Whenever food or beverages are consumed at the worksite where employees are performing Class I asbestos work, the employer shall provide lunch areas in which the airborne concentrations of asbestos are below the permissible exposure limit and/or excursion limit.

(2) Requirements for Class I work involving less than 25 linear or 10 square feet of TSI or surfacing ACM and PACM, and for Class II and Class III asbestos work operations where exposures exceed a PEL or where there is no negative exposure assessment produced before the operation.

(A) The employer shall establish an equipment room or area that is adjacent to the regulated area for the decontamination of employees and their equipment which is contaminated with asbestos which shall consist of an area covered by a impermeable drop cloth on the floor or horizontal working surface.

(B) The area must be of sufficient size as to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area (as determined by visible accumulations).

(C) Work clothing must be cleared with a HEPA vacuum before it is removed.

(D) All equipment and surfaces of containers filled with ACM must be cleaned prior to removing them from the equipment room or area.

(E) The employer shall ensure that employees enter and exit the regulated area through the equipment room or area.

(3) Requirements for Class IV work. Employers shall ensure that employees performing Class IV work within a regulated area comply with the hygiene practice required of employees performing work which has a higher classification within that regulated area. Otherwise employers of employees cleaning up debris and material which is TSI or surfacing ACM or identified as PACM shall provide decontamination facilities for such employees which are required by subsection (j)(2) of this section.

(4) Smoking in work areas. The employer shall ensure that employees do not smoke in work areas where they are occupationally exposed to asbestos because of activities in that work area.

(k) Communication of hazards. (1) This section applies to the communication of information concerning asbestos hazards in construction activities to facilitate compliance with this standard. Most asbestos-related construction activities involve previously installed building materials. Building owners often are the only and/or best sources of information concerning them. Therefore, they, along with employers of potentially exposed employees, are assigned specific information conveying and retention duties under this section.

Installed Asbestos Containing Building Material. Employers and building owners shall identify TSI and sprayed or troweled on surfacing materials in buildings as asbestos–containing, unless they determine in compliance with subsection (k)(5) of this section that the material is not asbestos–containing. Asphalt and vinyl flooring material installed no later than 1980 must also be considered as asbestos containing unless the employer, pursuant to subsection (g)(8)(A)9. of this section determines that it is not asbestos–containing. If the employer/building owner has actual knowledge, or should have known through the exercise of due diligence, that other materials are asbestos–containing, they too must be treated as such. When communicating information to employees pursuant to this standard, owners and employers shall identify "PACM" as ACM. Additional requirements relating to communication of asbestos work on multi–employer worksites are set out in subsection (d) of this section.

(2) Duties of building and facility owners.

(A) Before work subject to this standard is begun, building and facility owners shall determine the presence, location, and quantity of ACM and/or PACM at the work site pursuant to subsection (k)(1) of this section.

(B) Building and/or facility owners shall notify the following persons of the presence, location and quantity of ACM or PACM, at the work sites in their buildings and facilities. Notification either shall be in writing, or shall consist of a personal communication between the owner and the person to whom notification must be given or their authorized representatives:

1. Prospective employers applying or bidding for work whose employees reasonably can be expected to work in or adjacent to areas containing such material;

2. Employees of the owner who will work in or adjacent to areas containing such material;

3. On multi–employer worksites, all employers of employees who will be performing work within or adjacent to areas containing such materials;

4. Tenants who will occupy areas containing such material.

(3) Duties of employers whose employees perform work subject to this standard in or adjacent to areas containing ACM and PACM. Building/facility owners whose employees perform such work shall comply with these provisions to the extent applicable.

(A) Before work in areas containing ACM and PACM is begun; employers shall identify the presence, location, and quantity of ACM, and/or PACM therein pursuant to subsection (k)(1) of this section.

(B) Before work under this standard is performed employers of employees who will perform such work shall inform the following persons of the location and quantity of ACM and/or PACM present in the area and the precautions to be taken to insure that airborne asbestos is confined to the area.

1. Owners of the building/facility;

2. Employees who will perform such work and employers of employees who work and/or will be working in adjacent areas.

(C) Within 10 days of the completion of such work, the employer whose employees have performed work subject to this standard, shall inform the building/facility owner and employers of employees who will be working in the area of the current location and quantity of PACM and/or ACM remaining in the area and final monitoring results, if any.

(4) In addition to the above requirements, all employers who discover ACM and/or PACM on a worksite shall convey information concerning the presence, location and quantity of such newly discovered ACM and/or PACM to the owner and to other employers of employees working at the work site, within 24 hours of the discovery.

(5) Criteria to rebut the designation of installed material as PACM.

(A) At any time, an employer and/or building owner may demonstrate, for purposes of this standard, that PACM does not contain asbestos. Building owners and/or employers are not required to communicate information about the presence of building material for which such a demonstration pursuant to the requirements of subsection (k)(5)(B) of this section has been made. However, in all such cases, the information, data and analysis supporting the determination that PACM does not contain asbestos, shall be retained pursuant to subsection (n) of this section.

(B) An employer or owner may demonstrate that PACM does not contain more than 1% asbestos by the following:

1. Having completed an inspection conducted pursuant to the requirements of AHERA (40 CFR Part 763, Subpart E) which demonstrates that the material is not ACM or;

2. Performing tests of the material containing PACM which demonstrate that no ACM is present in the material. Such tests shall include analysis of bulk samples collected in the manner described in 40 CFR 763.86. The tests, evaluation and sample collection shall be conducted by an accredited inspector or by a CIH. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Voluntary Laboratory Accreditation Program (NVLAP) or the National Institute for Standards and Technology (NIST) or the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA) or an equivalent nationally–recognized round robin testing program.

(C) The employer and/or building owner may demonstrate that flooring material including associated mastic and backing does not contain asbestos, by a determination of an industrial hygienist based upon recognized analytical techniques showing that the material is not ACM.

(6) At the entrance to mechanical rooms/areas in which employees reasonably can be expected to enter and which contain thermal system insulation and surfacing ACM and/or PACM, the building owner shall post signs which identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that ACM and/or PACM will not be disturbed. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

(7) Signs.

(A) Warning signs that demarcate the regulated area shall be provided and displayed at each location where a regulated area is required to be established by subsection (e) of this section. Signs shall be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs.

(B) 1. The warning signs required by subsection (k)(7) of this section shall bear the following information:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY

2. In addition, where the use of respirators and protective clothing is required in the regulated area under this section, the warning signs shall include the following:

RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA

(C) The employer shall ensure that employees working in and contiguous to regulated areas comprehend the warning signs required to be posted by subsection (k)(7)(A) of this section. Means to ensure employee comprehension may include the use of foreign languages, pictographs and graphics.

(8) Labels.

(A) Labels shall be affixed to all products containing asbestos and to all containers containing such products, including waste containers. Where feasible, installed asbestos products shall contain a visible label.

(B) Labels shall be printed in large, bold letters on a contrasting background.

(C) Labels shall be used in accordance with the requirements of Section 5194 (f) of the General Industry Safety Orders, and shall contain the following information:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

(D) Labels shall contain a warning statement against breathing asbestos fibers.

(E) The provisions for labels required by subsections (k)(8)(A) through (k)(8)(C) do not apply where:

1. Asbestos fibers have been modified by a bonding agent, coating, binder, or other material, provided that the manufacturer can demonstrate that, during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the permissible exposure limit and/or excursion limit will be released, or

2. Asbestos is present in a waste product in concentrations less than 1.0 percent.

NOTE: Section 5194 of the General Industry Safety Orders requires that manufactured and imported products containing more than 0.1% asbestos by weight be labeled with an appropriate warning. The exemptions specified in subsection (k)(7)(E) only apply to waste products or waste containers.

(F) When a building owner/or employer identifies previously installed PACM and/or ACM, labels or signs shall be affixed or posted so that employees will be notified of what materials contain PACM and/or ACM. The employer shall attach such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical room/areas. Signs required by subsection (k)(6) of this section may be posted in lieu of labels so long as they contain information required for labelling. The employer shall ensure, to the extent feasible, that employees who come in contact with these signs or labels can comprehend them. Means to ensure employee comprehension may include the use of foreign languages, pictographs, graphics, and awareness training.

(9) Employee Information and Training.

(A) The employer shall, at no cost to the employee, institute a training program for all employees who are likely to be exposed in excess of a PEL and for all employees who perform Class I through IV asbestos operations, and shall ensure their participation in the program.

(B) Training shall be provided prior to or at the time of initial assignment and at least annually thereafter. Employees engaged in asbestos-related work that requires employer registration under Section 341.6 or engaged in asbestos cement pipe operations as defined in subsection (r), shall be trained and certified by a Division approved training provider. To be approved by the Division, training providers shall (1) apply to the Division for course approval and (2) pay fees covering the cost of the approval process to the Division as specified in regulations promulgated by the Division pursuant to the provisions of Chapter 3.5 (beginning with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

(C) Training for Class I operations and for Class II operations that require the use of critical barriers (or equivalent isolation methods) and/or negative pressure enclosures under this section shall be the equivalent in curriculum training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement workers training (40 CFR Part 763, Subpart E, Appendix C).

(D) Training for other Class II work.

1. For work with asbestos containing material involving roofing materials, flooring materials, siding materials, ceiling tiles, or transite panels, training shall include at a minimum all the elements included in subsection (k)(9)(H) of this section and in addition, the specific work practices and engineering controls set forth in subsection (g) of this section which specifically relate to that category. Such course shall include "hands-on" training and shall take at least 8 hours.

2. An employee who works with more than one of the categories of material specified in subsection (k)(9)(D)1. of this section shall receive training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses.

3. For Class II operations not involving the categories of material specified in subsection (k)(9)(D)1. of this section, training shall be provided which shall include at a minimum all the elements included in subsection (k)(9)(H) of this section and in addition, the specific work practices and engineering controls set forth in subsection (g) of this section which specifically relate to the category of material being removed, and shall include "hands-on" training in the work practices applicable to each category of material that the employee removes and each removal method that the employee uses.

(E) Training for Class III employees shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2). Such a course shall also include "hands-on' training and shall take at least 16 hours.

EXCEPTION: For Class III operations for which the competent person determines that the EPA curriculum does not adequately cover the training needed to perform that activity, training shall include as a minimum all the elements included in subsection (k)(9)(H) of this section and in addition, the specific work practices and engineering controls set forth in subsection (g) of this section which specifically relate to that activity, and shall include "hands-on" training in the work practices applicable to each category of material that the employee disturbs.

(F) Training for employees performing Class IV operations shall be consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(1). Such a course shall include available information concerning the locations of thermal system insulation and surfacing ACM/PACM, and asbestos-containing flooring material, or flooring material where the absence of asbestos has not yet been certified; and instruction in recognition of damage, deterioration, and delamination of asbestos containing building materials. Such course shall take at least 2 hours.

(G) Training for employees who are likely to be exposed in excess of the PEL and who are not otherwise required to be trained under subsections (k)(9)(C) through (F) of this section, shall meet the requirements of subsection (k)(9)(H) of this section.

(H) The training program shall be conducted in a manner that the employee is able to understand. In addition to the content required by provisions in subsections (k)(9)(C) through (F) of this section, the employer shall ensure that each such employee is informed of the following:

1. Methods of recognizing asbestos, including the requirement in subsection (k)(1) of this section to presume that certain building materials contain asbestos;

2. The health effects associated with asbestos exposure;

3. The relationship between smoking and asbestos in producing lung cancer;

4. The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including, as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures where Class III and IV work will be or is performed, the contents of EPA 20T-2003, "Managing Asbestos In-Place" July 1990 or its equivalent in content;

5. The purpose, proper use, fitting instructions, and limitations of respirators as required by Section 5144;

6. The appropriate work practices for performing the asbestos job;

7. Medical surveillance program requirements;

8. The content of this standard including appendices;

9. The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking cessation. The employer may distribute the list of such organizations contained in Appendix J to this section, to comply with this requirement; and

10. The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

(10) Access to training materials.

(A) The employer shall make readily available to affected employees without cost, written materials relating to the employee training program, including a copy of this regulation.

(B) The employer shall provide to the Chief and the Director, upon request, all information and training materials relating to the employee information and training program.

(C) The employer shall inform all employees concerning the availability of self-help smoking cessation program material. Upon employee request, the employer shall distribute such material, consisting of NIH Publication No. 89-1647, or equivalent self-help material, which is approved or published by a public health organization listed in Appendix J to this section.

(*l*) Housekeeping.

(1) Vacuuming. Where vacuuming methods are selected, HEPA filtered vacuuming equipment must be used. The equipment shall be used and emptied in a manner that minimizes the reentry of asbestos into the workplace.

(2) Waste disposal. Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing consigned for disposal shall be collected and disposed of in sealed, labeled, impermeable bags or other closed, labeled, impermeable containers except in roofing operations, where the procedures specified in subsection (g)(8)(B) of this section apply.

(3) Care of asbestos-containing flooring material.

(A) All vinyl and asphalt flooring material shall be maintained in accordance with this subsection unless the building/facility owner demonstrates, pursuant to subsection (g)(8)(A)9. of this section that the flooring does not contain asbestos.

(B) Sanding of flooring material is prohibited.

(C) Stripping of finishes shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.

(D) Burnishing or dry buffing may be performed only on flooring which has sufficient finish so that the pad cannot contact the flooring material.

(4) Waste and debris and accompanying dust in an area containing accessible thermal system insulation or surfacing ACM/PACM or visibly deteriorated ACM:

(A) shall not be dusted or swept dry, or vacuumed without using a HEPA filter;

(B) shall be promptly cleaned up and disposed of in leak tight containers.

(m) Medical surveillance.

(1) General

(A) Employees covered.

1. The employer shall institute a medical surveillance program for all employees who, for a combined total of 30 or more days per year, are engaged in Class I, II and III work or are exposed at or above the permissible exposure limit. For purposes of this paragraph, any day in which a worker engages in Class II or Class III operations or a combination thereof on intact material for one hour or less (taking into account the entire time spent on the removal operation, including cleanup) and, while doing so, adheres fully to the work practices specified in this standard, shall not be counted.

2. For employees otherwise required by this standard to wear a negative pressure respirator, employers shall ensure employees are physically able to perform the work and use the equipment. This determination shall be made under the supervision of a physician.

(B) Examination.

1. The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and are provided at no cost to the employee and at a reasonable time and place.

2. Persons other than such licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate academic or professional institution.

(2) Medical examinations and consultations.

(A) Frequency. The employer shall make available medical examinations and consultations to each employee covered under subsection (m)(1)(A) of this section on the following schedules:

1. Prior to assignment of the employee to an area where negative-pressure respirators are worn;

2. When the employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure limit for 30 or more days per year, or engage in Class I, II or III work for a combined total of 30 or more days per year, a medical examination must be given within 10 working days following the thirtieth day of exposure;

3. And at least annually thereafter.

4. If the examining physician determines that any of the examinations should be provided more frequently than specified, the employer shall provide such examinations to affected employees at the frequencies specified by the physician.

5. Exception: No medical examination is required of any employee if adequate records show that the employee has been examined in accordance with this subsection within the past 1 year period.

6. Employers shall provide a medical examination at the termination of employment for any employee who has been exposed to airborne concentrations of asbestos at or above the permissible exposure limit and/or excursion limit. The medical examination shall be given within 30 calendar days before or after the date of termination of employment.

(B) Content. Medical examinations made available pursuant to subsections (m)(2)(A)1. through (m)(2)(A)3. of this section shall include:

1. A medical and work history with special emphasis directed to the pulmonary, cardiovascular, and gastrointestinal systems.

2. On initial examination, the standardized questionnaire contained in Part 1 of Appendix D to this section, and, on annual examination, the abbreviated standardized questionnaire contained in Part 2 of Appendix D to this section.

3. A physical examination directed to the pulmonary and gastrointestinal systems, including a chest roentgenogram to be administered in accordance with Table 2 below, and pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV(1)). Interpretation and classification of chest roentgenograms shall be conducted in accordance with Appendix E to this section.

TABLE 2
FREQUENCY OF CHEST X-RAYS

| *YEARS SINCE FIRST EXPOSURE* | *AGE OF EMPLOYEE* | |
|---|---|---|
| | *LESS THAN 40* | *40 AND OLDER* |
| 0-10 | EVERY 3 YEARS | ANNUALLY* |
| 10+ | ANNUALLY* | ANNUALLY* |

*Oblique x-rays need only be performed every 3 years.

4. Any other examinations or tests deemed necessary by the examining physician.

(3) Information provided to the physician. The employer shall provide the following information to the examining physician:

(A) A copy of this standard and Appendices D, E, and I to this section;

(B) A description of the affected employee's duties as they relate to the employee's exposure;

(C) The employee's representative exposure level or anticipated exposure level;

(D) A description of any personal protective and respiratory equipment used or to be used; and

(E) Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

(4) Physician's written opinion.

(A) The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include:

1. The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;

2. Any recommended limitations on the employee or on the use of personal protective equipment such as respirators; and

3. A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

4. A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

(B) The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos.

(C) The employer shall provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.

(n) Recordkeeping.

(1) Objective data relied on pursuant to subsection (f) to this section.

(A) Where the employer has relied on objective data that demonstrates that products made from or containing asbestos or the activity involving such products or material are not capable of releasing fibers of asbestos in concentrations at or above the permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling to satisfy the requirements of subsection (f), the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

(B) The record shall include at least the following information:

1. The product qualifying for exemption;

2. The source of the objective data;

3. The testing protocol, results of testing, and/or analysis of the material for the release of asbestos;

4. A description of the operation exempted and how the data support the exemption; and

5. Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(C) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(2) Exposure measurements.

(A) The employer shall keep an accurate record of all measurements taken to monitor employee exposure to asbestos as prescribed in subsection (f) of this section.

NOTE: The employer my utilize the services of competent organizations such as industry trade associations and employee associations to maintain the records required by this section.

(B) This record shall include at least the following information:

1. The date of measurement;

2. The operation involving exposure to asbestos that is being monitored;

3. Sampling and analytical methods used and evidence of their accuracy;

4. Number, duration, and results of samples taken;

5. Type of protective devices worn, if any; and

6. Name, social security number, and exposure of the employees whose exposures are represented.

(C) The employer shall maintain this record for at least thirty (30) years, in accordance with Section 3204 of the General Industry Safety Orders.

(3) Medical surveillance.

(A) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance by subsection (m) of this section, in accordance with Section 3204 of the General Industry Safety Orders.

(B) The record shall include at least the following information:

1. The name and social security number of the employee;

2. A copy of the employee's medical examination results, including the medical history, questionnaire responses, results of any tests, and physician's recommendations.

3. Physician's written opinions;

4. Any employee medical complaints related to exposure to asbestos; and

5. A copy of the information provided to the physician as required by subsection (m) of this section.

(C) The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with Section 3204 of the General Industry Safety Orders.

(4) Training records. The employer shall maintain all employee training records for one (1) year beyond the last date of employment by that employer.

(5) Data to Rebut PACM. Where the building owner and employer have relied on data to demonstrate that PACM is not asbestos–containing, such data shall be maintained for as long as they are relied upon to rebut the presumption.

(6) Records of Required Notifications. Where the building owner has communicated and received information concerning the identification, location and quantity of ACM and PACM, written records of such notifications and their content shall be maintained by the building owner for the duration of ownership and shall be transferred to successive owners of such buildings/facilities.

(7) Availability.

(A) The employer, upon written request, shall make all records required to be maintained by this section available to the Chief and the Director for examination and copying.

(B) The employer, upon request, shall make any exposure records required by subsections (f) and (n) of this section available for examination and copying to affected employees, former employees, designated representatives, and the Chief, in accordance with Section 3204 of the General Industry Safety Orders.

(C) The employer, upon request, shall make employee medical records required by subsections (m) and (n) of this section available for examination and copying to the subject employee, anyone having the specific written consent of the subject employee, and the Chief, in accordance with Section 3204 of the General Industry Safety Orders.

(8) Transfer of records.

(A) The employer shall comply with the requirements concerning transfer of records set forth in Section 3204 of the General Industry Safety orders.

(B) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director at least 90 days prior to disposal and, upon request, transmit them to the Director.

(o) Competent person.

(1) General. On all construction worksites covered by this standard, the employer shall designate a competent person, having the qualifications and authorities for ensuring worker safety and health required by Sections 1509, 1510, 1512, 1513, 1514, 1523, and 1920 of these orders.

(2) Required Inspections by the Competent Person. Section 1509(a) of these orders, which requires health and safety prevention programs to provide for frequent and regular inspections of the job sites, materials, and equipment to be made by competent persons, is incorporated.

(3) Additional Inspections. In addition, the competent person shall make frequent and regular inspections of the job sites, in order to perform the duties set out below in subsection (o)(3)(A). For Class I jobs, on–site inspections shall be made at least once during each work shift, and at any time at employee request. For Class II, III and IV jobs, on–site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

(A) On all worksites where employees are engaged in Class I or II asbestos work, the competent person designated in accordance with subsection (e)(6) of this section shall perform or supervise the following duties, as applicable:

1. Set up the regulated area, enclosure, or other containment;

2. Ensure (by on-site inspection) the integrity of the enclosure or containment;

3. Set up procedures to control entry to and exit from the enclosure and/or area;

4. Supervise all employee exposure monitoring required by this section and ensure that it is conducted as required by subsection (f) of this section;

5. Ensure that employees working within the enclosure and/or using glove bags wear respirators and protective clothing as required by subsections (h) and (i) of this section;

6. Ensure through on-site supervision, that employees set up, use, and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements;

7. Ensure that employees use the hygiene facilities and observe the decontamination procedures specified in subsection (j) of this section;

8. Ensure that, through on-site inspection, engineering controls are functioning properly and employees are using proper work practices; and,

9. Ensure that notification requirement in subsection (k) of this section are met.

(4) Training for the competent person.

(A) For Class I, and II asbestos work the competent person shall be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of this standard; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training shall be obtained in a comprehensive course for supervisors, that meets the criteria of EPA's Model Accredited Plan (40 CFR Part 763, Subpart E. Appendix C), such as a course conducted by an EPA-approved or state approved training provider, certified by EPA or a state, or a course equivalent in stringency, content and length.

(B) For Class III and IV asbestos work, the competent person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this standard, and the identification of asbestos. Such training shall include successful completion of a course that is consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2), or its equivalent in stringency, content, and length. Competent persons for Class III and IV work, may also be trained pursuant to the requirements of subsection (o)(4)(A) of this section.

(p) Appendices.

(1) Appendices A, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

(2) Appendices B, F, H, I, J, and K to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

(q) Certified Asbestos Consultants and Certified Site Surveillance Technicians.

(1) The following definitions are applicable to subsection (q) only:

"Asbestos consultant" means any person who contracts to provide professional health and safety services relating to asbestos- containing construction material as defined in this subsection, which comprises 100 square feet or more of surface area. The activities of an asbestos consultant include building inspection, abatement project design, contract administration, sample collection, preparation of asbestos management plans, clearance monitoring, and supervision of site surveillance technicians as defined in this subsection.

"Asbestos-containing construction material" means any manufactured construction material which contains more than one tenth of 1 percent asbestos by weight.

"Certified asbestos consultant" means any asbestos consultant certified by the Division pursuant to this section.

"Certified site surveillance technician" means any surveillance technician certified by the Division pursuant to the section.

"Division" means the Division of Occupational Safety and Health of the California Department of Industrial Relations.

"Site surveillance technician" means any person who acts as an independent on-site representative of an asbestos consultant. The site surveillance technician monitors the asbestos abatement activities of others, provides asbestos air monitoring services for area and personal samples, and performs building surveys and contract administration at the direction of an asbestos consultant.

"State-of-the-art" means all asbestos abatement and control work procedures currently in use which have been demonstrated to be the most effective, reliable, and protective of workers health. As new procedures are developed which demonstrate greater effectiveness, reliability, and worker protection and thereby come into use, they become state-of-the-art.

(2) Certified Asbestos Consultant Criteria.

To obtain certification, an asbestos consultant must apply to the Division and complete all application requirements specified in Section 341.15. In order to qualify as an asbestos consultant, the applicant must meet all of the following requirements:

(A) Achievement of a passing score as determined by the Division on an examination approved or administered by the Division including, but not limited to, the following subjects:

1. The physical characteristics of asbestos;

2. The health effects of asbestos;

3. The regulatory requirements of the Division, the Federal Occupational Safety and Health Administration, the U.S. Environmental Protection Agency, air quality management districts, and the Department of Health Services, including protective clothing, respiratory protection, exposure limits, personal hygiene, medical monitoring, disposal, and general industry safety hazards;

4. State-of-the-art asbestos abatement and control work procedures;

5. Federal Asbestos Hazard Emergency Response Act training information and procedures for inspectors, management planners, and supervisors, as provided for under Subchapter II (commencing with Section 2641) of Chapter 53 of Title 15 of the United States Code, or the equivalent, as determined by the Division; and

6. Information concerning industrial hygiene sampling methodology, including asbestos sampling and analysis techniques and recordkeeping.

(B) Providing such documentation and other information as the Division shall require to substantiate:

1. The possession of a valid and appropriate federal Asbestos Hazard Emergency Response Act [Subchapter II (commencing with Section 2641) of Chapter 53 of Title 15 of the United States Code] certificate, or its equivalent, as determined by the Division; and

2. Any one of the following combinations of education and experience:

A. One year of asbestos-related experience and a bachelor of science degree in engineering, architecture, industrial hygiene, construction management, or a related biological or physical science;

B. Two years of asbestos-related experience and a bachelor's degree;

C. Three years of asbestos-related experience and an associate of arts degree in engineering, architecture, industrial hygiene, construction management, or a related biological or physical science; or

D. Four years of asbestos-related experience and a high school diploma or its equivalent.

(3) Certified Site Surveillance Technician Criteria.

To obtain certification, a site surveillance technician must apply to the Division and complete all application requirements specified in Section 341.15. In order to qualify as a site surveillance technician, the applicant must meet all of the following requirements:

(A) Achievement of a passing score as determined by the Division on an examination approved or administered by the Division including, but not limited to, the following subjects:

1. The physical characteristics of asbestos;

2. The health effects of asbestos;

3. The regulatory requirements of the Division, the Federal Occupational Safety and Health Administration, the U.S. Environmental Protection Agency, air quality management districts, and the Department of Health Services, including protective clothing, respiratory protection, exposure limits, personal hygiene, medical monitoring, disposal, and general industry safety hazards;

4. State-of-the-art asbestos abatement and control work procedures.

5. Information concerning industrial hygiene sampling methodology, including sampling techniques and recordkeeping.

(B) Providing such documentation and other information as the Division shall require to substantiate all of the following:

1. Possession of a valid federal Asbestos Hazard Emergency Response Act [Subchapter II (commencing with Section 2641) of Chapter 53 of Title 15 of the United States Code] certificate for the type of work being performed, or its equivalent, as determined by the Division.

2. Six (6) months of asbestos-related experience under the supervision of an asbestos consultant.

3. Possession of a high school diploma or equivalent.

(4) No employer shall engage the services of an asbestos consultant or site surveillance technician unless that person provides proof of certification by the Division.

(r) Report of Use and Asbestos-related Work Registration.

(1) The following definitions are applicable to subsection (r) only:

"Asbestos-containing construction material" means any manufactured construction material which contains more than one tenth of 1 percent asbestos by weight.

"Asbestos-related work" means any activity which by disturbing asbestos-containing construction materials may release asbestos fibers into the air and which is not related to its manufacture, the mining or excavation of asbestos-bearing ore or materials, or the installation or repair of automotive materials containing asbestos. Asbestos-related work does not include the installation, repair, maintenance, or nondestructive removal of asbestos cement pipe used outside of buildings if the work operations do not result in employee exposures to asbestos in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8-hour time-weighted average and the employees and supervisors involved in the work operations are trained and certified by an asbestos cement pipe training program which is approved by the Division.

(2) Report of Use. See section 5203.

NOTE: Employers registered with the Chief in accordance with Sections 341.6 to 341.9 for the purpose of conducting asbestos-related work involving over 100 square feet, as defined in Section 341.6(a), of asbestos-containing construction material shall be deemed to be in compliance with section 5203 for the asbestos-related work requiring registration. Except that emergencies as defined in section 5203(a) must be reported as required in section 5203(f).

EXCEPTION: An employer need not register all the materials containing asbestos if objective data demonstrates that during all reasonably foreseeable uses, handling, storage, disposal, processing, or transportation, no airborne concentrations of asbestos fibers in excess of the permissible exposure limit and/or excursion limit will be released. The objective data shall include at least those elements specified in subsection (n)(1) of this section.

NOTE: Authority cited: Sections 142.3, 6501.5, 9020, 9021.5, 9021.9, 9030 and 9040, Labor Code. Reference: Sections 142.3, 6501.5, 6501.7, 6501.8, 6501.9, 6502, 9003, 9004(b), 9005, 9006, 9009, 9020, 9021.5, 9021.9, 9030 and 9040, Labor Code; Section 25910, Health and Safety Code; and Sections 7180, 7180.5, 7181, 7182, 7183, 7183.5, 7184, 7185, 7187, 7189, 7189.5 and 7189.7, Business and Professions Code.

HISTORY

1. New section filed 2-15-91; operative 2-15-91 pursuant to Government Code section 11346.2(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1. (Register 91, No. 45).
3. Amendment of subsection (b) and NOTE and adoption of subsections (o)(6)-(o)(8) and (t) filed 1-21-92 as an emergency; operative 2-20-92 (Register 92, No. 13).
4. Change without regulatory effect amending definition of chief in subsection (b) filed 3-4-92 pursuant to section 100, title 1, California Code of Regulations (Register 92, No. 19).
5. Amendment of subsection (c)(1) filed 5-1-95; operative 5-31-95 (Register 95, No. 18).
6. Editorial correction of subsection (b) (Register 95, No. 41).
7. Change without regulatory effect deleting duplicate "Certified supervisor" definition filed 12-21-95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 51).
8. Repealer and new section filed 5-3-96; operative 7-3-96 (Register 96, No. 18).
9. Amendment of subsections (k)(9)(B), (q)(2)-(3) and (r)(1) definition of "Asbestos-related work," and amendment of NOTE filed 2-5-97; operative 3-7-97 (Register 97, No. 6).
10. New subsection (h)(2)(F), amendment of subsections (k)(6), (k)(8)(F) and (k)(9)(C)-(k)(9)(D)1., new (k)(9)(D)2.-3. and amendment of subsections (k)(9)(E) and (m)(1)(A)1. filed 10-3-97; operative 10-3-97. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 97, No. 40).
11. Amendment of former subsections (h)(1)-(h)(4)(B) including subsection renumbering and relettering resulting in newly designated subsections (h)(1)-(h)(3)(D)3. filed 8-25-98; operative 11-23-98 (Register 98, No. 35).
12. Amendment of subsections (r)-(r)(2), repealer of subsection (r)(2)(A), Note 1. and Note 2. designator, amendment of former Note 2., and repealer of subsections (r)(2)(B)-(r)(2)(B)1. and (r)(2)(B)2.-(r)(5) filed 7-6-99; operative 8-5-99 (Register 99, No. 28).
13. Change without regulatory effect amending subsections (h)(3)(D)2.-3. filed 12-20-99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 52).
14. Amendment of subsection (g)(5) filed 3-22-2004; operative 3-22-2004. Submitted to OAL for printing only. This filing is necessary to correct a discrepancy between this section and the corresponding federal regulation, 29 CFR 1926.1101, and is not subject to Articles 5 and 6 of the Administrative Procedure Act pursuant to subdivision (a)(3) of Labor Code section 142.3 (Register 2004, No. 13).
15. Amendment of subsection (f)(5)(A) and repealer of subsection (g)(6)(C) filed 7-28-2005; operative 7-28-2005. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2005, No. 30).
16. Amendment of subsections (h)(3)(A), new subsection (h)(3)(B), subsection relettering and amendment of newly designated subsections (h)(3)(C), (h)(3)(D), (h)(3)(E) and (h)(3)(E)2.-3. filed 3-6-2007; operative 3-6-2007. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2007, No. 10).

## Appendix A

### OSHA Reference Method
### Mandatory

This mandatory appendix specifies the procedure for analyzing air samples for asbestos and specifies quality control procedures that must be implemented by laboratories performing the analysis. The sampling and analytical methods described below represent the elements of the available monitoring methods (such as appendix B to this section, the most current version of the OSHA method ID-60, or the most current version of the NIOSH 7400 method) which OSHA considers to be essential to achieve adequate employee exposure monitoring while allowing employers to use methods that are already established within their organizations. All employers who are required to conduct air monitoring under subsection (f) of this section are required to utilize analytical laboratories that use this procedure, or an equivalent method, for collecting and analyzing samples.

Sampling and Analytical Procedure

1. The sampling medium for air samples shall be mixed cellulose ester filter membranes. These shall be designated by the manufacturer as suitable for asbestos counting. See below for rejection of blanks.

2. The preferred collection device shall be the 25-mm diameter cassette with an open-faced 50-mm extension cowl. The 37-mm cassette may be used if necessary but only if written justification for the need to use the 37-mm filter cassette accompanies the sample results in the employee's exposure monitoring record. Do not reuse or reload cassettes for asbestos sample collection.

3. An air flow rate between 0.5 liter/min and 2.5 liters/min shall be selected for the 25-mm cassette. If the 37-mm cassette is used, an air flow rate between 1 liter/min and 2.5 liters/min shall be selected.

4. Where possible, a sufficient air volume for each air sample shall be collected to yield between 100 and 1,300 fibers per square millimeter on the membrane filter. If a filter darkens in appearance or if loose dust is seen on the filter, a second sample shall be started.

5. Ship the samples in a rigid container with sufficient packing material to prevent dislodging the collected fibers. Packing material that has a high electrostatic charge on its surface (e.g., expanded polystyrene) cannot be used because such material can cause loss of fibers to the sides of the cassette.

6. Calibrate each personal sampling pump before and after use with a representative filter cassette installed between the pump and the calibration devices.

7. Personal samples shall be taken in the "breathing zone" of the employee (i.e., attached to or near the collar or lapel near the worker's face).

8. Fiber counts shall be made by positive phase contrast using a microscope with an 8 to 10 X eyepiece and a 40 to 45 X objective for a total

[The next page is 164.15.]

magnification of approximately 400 X and a numerical aperture of 0.65 to 0.75. The microscope shall also be fitted with a green or blue filter.

9. The microscope shall be fitted with a Walton–Beckett eyepiece graticule calibrated for a field diameter of 100 micrometers (+/– 2 micrometers).

10. The phase–shift detection limit of the microscope shall be about 3 degrees measured using the HSE phase shift test slide as outlined below.

a. Place the test slide on the microscope stage and center it under the phase objective.

b. Bring the blocks of grooved lines into focus.

**Note:** The slide consists of seven sets of grooved lines (ca. 20 grooves to each block) in descending order of visibility from sets 1 to 7, seven being the least visible. The requirements for asbestos counting are that the microscope optics must resolve the grooved lines in set 3 completely, although they may appear somewhat faint, and that the grooved lines in sets 6 and 7 must be invisible. Sets 4 and 5 must be at least partially visible but may vary slightly in visibility between microscopes. A microscope that fails to meet these requirements has either too low or too high a resolution to be used for asbestos.

c. If the image deteriorates, clean and adjust the microscope optics. If the problem persists, consult the microscope manufacturer.

11. Each set of samples taken will include 10% field blanks or a minimum of 2 field blanks. These blanks must come from the same lot as the filters used for sample collection. The field blank results shall be averaged and subtracted from the analytical results before reporting. A set consists of any sample or group of samples for which an evaluation for this standard must be made. Any samples represented by a field blank having a fiber count in excess of the detection limit of the method being used shall be rejected.

12. The samples shall be mounted by the acetone/triacetin method or a method with an equivalent index of refraction and similar clarity.

13. Observe the following counting rules.

a. Count only fibers equal to or longer than 5 micrometers. Measure the length of curved fibers along the curve.

b. Count all particles as asbestos that have a length–to–width ratio (aspect ratio) of 3:1 or greater.

c. Fibers lying entirely within the boundary of the Walton–Beckett graticule field shall receive a count of 1. Fibers crossing the boundary once, having one end within the circle, shall receive the count of one half (1/2). Do not count any fiber that crosses the graticule boundary more than once. Reject and do not count any other fibers even though they may be visible outside the graticule area.

d. Count bundles of fibers as one fiber unless individual fibers can be identified by observing both ends of an individual fiber.

e. Count enough graticule fields to yield 100 fibers. Count a minimum of 20 fields; stop counting at 100 fields regardless of fiber count.

14. Blind recounts shall be conducted at the rate of 10 percent.

Quality Control Procedures

1. Intra–laboratory program. Each laboratory and/or each company with more than one microscopist counting slides shall establish a statistically designed quality assurance program involving blind recounts and comparisons between microscopists to monitor the variability of counting by each microscopist and between microscopists. In a company with more than one laboratory, the program shall include all laboratories and shall also evaluate the laboratory–to–laboratory variability.

2. a. Interlaboratory program. Each laboratory analyzing asbestos samples for compliance determination shall implement an interlaboratory quality assurance program that as a minimum includes participation of at least two other independent laboratories. Each laboratory shall participate in round robin testing at least once every 6 months with at least all the other laboratories in its interlaboratory quality assurance group. Each laboratory shall submit slides typical of its own work load for use in this program. The round robin shall be designed and results analyzed using appropriate statistical methodology.

b. All laboratories should participate in a national sample testing scheme such as the Proficiency Analytical Testing Program (PAT), the Asbestos Registry sponsored by the American Industrial Hygiene Association (AIHA).

3. All individuals performing asbestos analysis must have taken the NIOSH course for sampling and evaluating airborne asbestos dust or an equivalent course.

4. When the use of different microscopes contributes to differences between counters and laboratories, the effect of the different microscopes shall be evaluated and the microscopes shall be replaced, as necessary.

5. Current results of these quality assurance programs shall be posted in each laboratory to keep the microscopists informed.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix A to section 1529 filed 2–15–91; operative 2–15–91 pursuant to Government Code section 11346.2(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1. (Register 91, No. 45).
3. Amendment filed 5–3–96; operative 7–3–96 (Register 96, No. 18).

## Appendix B

## Sampling and Analysis (Non–mandatory)

Matrix Air:

OSHA Permissible Exposure Limits:

| | |
|---|---|
| Time Weighted Average | 0.1 fiber/cc |
| Excursion Level (30 minutes) | 1.0 fiber/cc |

Collection Procedure:

A known volume of air is drawn through a 25–mm diameter cassette containing a mixed–cellulose ester filter. The cassette must be equipped with an electrically conductive 50–mm extension cowl. The sampling time and rate are chosen to give a fiber density of between 100 to 1,300 fibers/mm2 on the filter.

| | |
|---|---|
| Recommended Sampling Rate | 0.5 to 5.0 liters/minute (L/min) |

Recommended Air Volumes:

| | |
|---|---|
| Minimum | 25 L |
| Maximum | 2,400 L |

Analytical Procedure:

A portion of the sample filter is cleared and prepared for asbestos fiber counting by Phase Contrast Microscopy (PCM) at 400X. Commercial manufacturers and products mentioned in this method are for descriptive use only and do not constitute endorsements by USDOL–OSHA. Similar products from other sources can be substituted.

1. Introduction

This method describes the collection of airborne asbestos fibers using calibrated sampling pumps with mixed–cellulose ester (MCE) filters and analysis by phase contrast microscopy (PCM). Some terms used are unique to this method and are defined below: Asbestos: A term for naturally occurring fibrous minerals. Asbestos includes chrysotile, crocidolite, amosite (cummingtonite–grunerite asbestos), tremolite asbestos, actinolite asbestos, anthophyllite asbestos, and any of these minerals that have been chemically treated and/or altered. The precise chemical formulation of each species will vary with the location from which it was mined. Nominal compositions are listed:

| | |
|---|---|
| Chrysotile | $Mg_3Si_2O_5(OH)_4$ |
| Crocidolite | $Na_2Fe_3^{2+}Fe_2^{3+}Si_8O_{22}(OH)_2$ |
| Amosite | $(Mg,Fe)_7Si_8O_{22}(OH)_2$ |
| Tremolite–actinolite | $Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$ |
| Anthophyllite | $(Mg,Fe)_7Si_8O_{22}(OH)_2$ |

Asbestos Fiber: A fiber of asbestos which meets the criteria specified below for a fiber.

Aspect Ratio: The ratio of the length of a fiber to it's diameter (e.g. 3:1, 5:1 aspect ratios).

Cleavage Fragments: Mineral particles formed by comminution of minerals, especially those characterized by parallel sides and a moderate aspect ratio (usually less than 20:1).

Detection Limit: The number of fibers necessary to be 95% certain that the result is greater than zero.

Differential Counting: The term applied to the practice of excluding certain kinds of fibers from the fiber count because they do not appear to be asbestos.

Fiber: A particle that is 5 μm or longer, with a length-to-width ratio of 3 to 1 or longer.

Field: The area within the graticule circle that is superimposed on the microscope image.

Set: The samples which are taken, submitted to the laboratory, analyzed, and for which, interim or final result reports are generated.

Tremolite, Anthophyllite, and Actinolite: The non-asbestos form of these minerals which meet the definition of a fiber. It includes any of these minerals that have been chemically treated and/or altered.

Walton-Beckett Graticule: An eyepiece graticule specifically designed for asbestos fiber counting. It consists of a circle with a projected diameter of 100 plus or minus 2 μm (area of about 0.00785 $mm^2$) with a crosshair having tic-marks at 3-μm intervals in one direction and 5-μm in the orthogonal direction. There are marks around the periphery of the circle to demonstrate the proper sizes and shapes of fibers. This design is reproduced in Figure 1. of this appendix. The disk is placed in one of the microscope eyepieces so that the design is superimposed on the field of view.

1.1. History

Early surveys to determine asbestos exposures were conducted using impinger counts of total dust with the counts expressed as million particles per cubic foot. The British Asbestos Research Council recommended filter membrane counting in 1969. In July 1969, the Bureau of Occupational Safety and Health published a filter membrane method for counting asbestos fibers in the United States. This method was refined by NIOSH and published as P & CAM 239. On May 29, 1971, OSHA specified filter membrane sampling with phase contrast counting for evaluation of asbestos exposures at work sites in the United States. The use of this technique was again required by OSHA in 1986. Phase contrast microscopy has continued to be the method of choice for the measurement of occupational exposure to asbestos.

1.2. Principle

Air is drawn through a MCE filter to capture airborne asbestos fibers. A wedge shaped portion of the filter is removed, placed on a glass microscope slide and made transparent. A measured area (field) is viewed by PCM. All the fibers meeting defined criteria for asbestos are counted and considered a measure of the airborne asbestos concentration.

1.3. Advantages and Disadvantages

There are four main advantages of PCM over other methods:

(1) The technique is specific for fibers. Phase contrast is a fiber counting technique which excludes non-fibrous particles from the analysis.

(2) The technique is inexpensive and does not require specialized knowledge to carry out the analysis for total fiber counts.

(3) The analysis is quick and can be performed on-site for rapid determination of air concentrations of asbestos fibers.

(4) The technique has continuity with historical epidemiological estimates of expected disease can be inferred from long-term determinations of asbestos exposures.

The main disadvantage of PCM is that it does not positively identify asbestos fibers. Other fibers which are not asbestos may be included in the count unless differential counting is performed. This requires a great deal of experience to adequately differentiate asbestos from non-asbestos fibers. Positive identification of asbestos must be performed by polarized light or electron microscopy techniques. A further disadvantage of PCM is that the smallest visible fibers are about 0.2μm in diameter while the finest asbestos fibers may be as small as 0.02μm in diameter. For some exposures, substantially more fibers may be present than are actually counted.

1.4. Workplace Exposure

Asbestos is used by the construction industry in such products as shingles, floor tiles, asbestos cement, roofing felts, insulation and acoustical products. Non-construction uses include brakes, clutch facings, paper, paints, plastics, and fabrics. One of the most significant exposures in the workplace is the removal and encapsulation of asbestos in schools, public buildings, and homes. Many workers have the potential to be exposed to asbestos during these operations.

About 95% of the asbestos in commercial use in the United States is chrysotile. Crocidolite and amosite make up most of the remainder. Anthophyllite and tremolite or actinolite are likely to be encountered as contaminants in various industrial products.

1.5. Physical Properties

Asbestos fiber possesses a high tensile strength along its axis, is chemically inert, non-combustible, and heat resistant. It has a high electrical resistance and good sound absorbing properties. It can be weaved into cables, fabrics or other textiles, and also matted into asbestos papers, felts, or mats.

2. Range and Detection Limit

2.1. The ideal counting range on the filter is 100 to 1,300 fibers/$mm^2$ With a Walton-Beckett graticule this range is equivalent to 0.8 to 10 fibers/field. Using NIOSH counting statistics, a count of 0.8 fibers/field would give an approximate coefficient of variation (CV) of 0.13.

2.2. The detection limit for this method is 4.0 fibers per 100 fields or 5.5 fibers/$mm^2$. This was determined using an equation to estimate the maximum CV possible at a specific concentration (95% confidence) and a Lower Control Limit of zero. The CV value was then used to determine a corresponding concentration from historical CV vs fiber relationships. As an example:

Lower Control Limit (95% Confidence) = AC — 1.645(CV)(AC)

Where:

AC = Estimate of the airborne fiber concentration (fibers/cc) Setting the Lower Control Limit = 0 and solving for CV:

0 = AC - 1.645(CV)(AC)

CV = 0.61

This value was compared with CV vs. count curves. The count at which CV = 0.61 for Leidel-Busch counting statistics or for an OSHA Salt Lake Technical Center (OSHA-SLTC) CV curve (see Appendix A for further information) was 4.4 fibers or 3.9 fibers per 100 fields, respectively. Although a lower detection limit of 4 fibers per 100 fields is supported by the OSHA-SLTC data, both data sets support the 4.5 fibers per 100 fields value.

3. Method Performance — Precision and Accuracy

Precision is dependent upon the total number of fibers counted and the uniformity of the fiber distribution on the filter. A general rule is to count at least 20 and not more than 100 fields. The count is discontinued when 100 fibers are counted, provided that 20 fields have already been counted. Counting more than 100 fibers results in only a small gain in precision. As the total count drops below 10 fibers, an accelerated loss of precision is noted.

At this time, there is no known method to determine the absolute accuracy of the asbestos analysis. Results of samples prepared through the Proficiency Analytical Testing (PAT) Program and analyzed by the OSHA-SLTC showed no significant bias when compared to PAT reference values. The PAT samples were analyzed from 1987 to 1989 (N=36) and the concentration range was from 120 to 1,300 fibers/mm(2).

4. Interferences

Fibrous substances, if present, may interfere with asbestos analysis. Some common fibers are:

fiberglass
anhydrite
plant fibers
perlite veins
gypsum
some synthetic fibers

membrane structures
sponge spicules
diatoms
microorganisms
wollastonite

The use of electron microscopy or optical tests such as polarized light, and dispersion staining may be used to differentiate these materials from asbestos when necessary.

5. Sampling

5.1. Equipment

5.1.1. Sample assembly. Conductive filter holder consisting of a 25–mm diameter, 3–piece cassette having a 50–mm long electrically conductive extension cowl, Backup pad, 25–mm, cellulose. Membrane filter, mixed–cellulose ester (MCE), 25–mm, plain, white, 0.4– to 1.2–µm pore size.

NOTES:
(a) DO NOT RE–USE CASSETTES.
(b) Fully conductive cassettes are required to reduce fiber loss to the sides of the cassette due to electrostatic attraction.
(c) Purchase filters which have been selected by the manufacturer for asbestos counting or analyze representative filters for fiber background before use. Discard the filter lot if more than 4 fibers/100 fields are found.
(d) To decrease the possibility of contamination, the sampling system (filter–back-up pad–cassette) for asbestos is usually preassembled by the manufacturer.
(e) Other cassettes, such as the Bell-mouth, may be used within the limits of their validation.

5.1.2. Gel bands for sealing cassettes.

5.1.3. Sampling pump. Each pump must be a battery operated, self–contained unit small enough to be placed on the monitored employee and not interfere with the work being performed. The pump must be capable of sampling at the collection rate for the required sampling time.

5.1.4. Flexible tubing, 6–mm bore.

5.1.5. Pump calibration.

Stopwatch and bubble tube/burette or electronic meter.

5.2. Sampling Procedure

5.2.1. Seal the point where the base and cowl of each cassette meet with a gel band or tape.

5.2.2. Charge the pumps completely before beginning.

5.2.3. Connect each pump to a calibration cassette with an appropriate length of 6–mm bore plastic tubing. Do not use luer connectors — the type of cassette specified above has built–in adapters.

5.2.4. Select an appropriate flow rate for the situation being monitored. The sampling flow rate must be between 0.5 and 5.0 L/min for personal sampling and is commonly set between 1 and 2 L/min. Always choose a flow rate that will not produce overloaded filters.

5.2.5. Calibrate each sampling pump before and after sampling with a calibration cassette in–line (Note: This calibration cassette should be from the same lot of cassettes used for sampling). Use a primary standard (e.g. bubble burette) to calibrate each pump. If possible, calibrate at the sampling site.

NOTE: If sampling site calibration is not possible, environmental influences may affect the flow rate. The extent is dependent on the type of pump used. Consult with the pump manufacturer to determine dependence on environmental influences. If the pump is affected by temperature and pressure changes, correct the flow rate using the formula shown in the section "Sampling Pump Flow Rate Corrections" at the end of this appendix.

5.2.6. Connect each pump to the base of each sampling cassette with flexible tubing. Remove the end cap of each cassette and take each air sample open face. Assure that each sample cassette is held open side down in the employee's breathing zone during sampling. The distance from the nose/mouth of the employee to the cassette should be about 10 cm. Secure the cassette on the collar or lapel of the employee using spring clips or other similar devices.

5.2.7. A suggested minimum air volume when sampling to determine TWA compliance is 25 L. For Excursion Limit (30 min sampling time) evaluations, a minimum air volume of 48 L is recommended.

5.2.8. The most significant problem when sampling for asbestos is overloading the filter with non–asbestos dust. Suggested maximum air sample volumes for specific environments are:

| *Environment* | *Air Vol. (L)* |
|---|---|
| Asbestos removal operations (visible dust) | 100. |
| Asbestos removal operations (little dust) | 240. |
| Office environments. 400 to 2,400. | |

CAUTION: Do not overload the filter with dust. High levels of non–fibrous dust particles may obscure fibers on the filter and lower the count or make counting impossible. If more than about 25 to 30% of the field area is obscured with dust, the result may be biased low. Smaller air volumes may be necessary when there is excessive non–asbestos dust in the air.

While sampling, observe the filter with a small flashlight. If there is a visible layer of dust on the filter, stop sampling, remove and seal the cassette, and replace with a new sampling assembly. The total dust loading should not exceed 1 mg.

5.2.9. Blank samples are used to determine if any contamination has occurred during sample handling. Prepare two blanks for the first 1 to 20 samples. For sets containing greater than 20 samples, prepare blanks as 10% of the samples. Handle blank samples in the same manner as air samples with one exception: Do not draw any air through the blank samples. Open the blank cassette in the place where the sample cassettes are mounted on the employee. Hold it open for about 30 seconds. Close and seal the cassette appropriately. Store blanks for shipment with the sample cassettes.

5.2.10. Immediately after sampling, close and seal each cassette with the base and plastic plugs. Do not touch or puncture the filter membrane as this will invalidate the analysis.

5.2.11. Attach and secure a sample seal around each sample cassette in such a way as to assure that the end cap and base plugs cannot be removed without destroying the seal. Tape the ends of the seal together since the seal is not long enough to be wrapped end–to–end. Also wrap tape around the cassette at each joint to keep the seal secure.

5.3. Sample Shipment

5.3.1. Send the samples to the laboratory with paperwork requesting asbestos analysis. List any known fibrous interferences present during sampling on the paperwork. Also, note the workplace operation(s) sampled.

5.3.2. Secure and handle the samples in such that they will not rattle during shipment nor be exposed to static electricity. Do not ship samples in expanded polystyrene peanuts, vermiculite, paper shreds, or excelsior. Tape sample cassettes to sheet bubbles and place in a container that will cushion the samples in such a manner that they will not rattle.

5.3.3. To avoid the possibility of sample contamination, always ship bulk samples in separate mailing containers.

6. Analysis

6.1. Safety Precautions

6.1.1. Acetone is extremely flammable and precautions must be taken not to ignite it. Avoid using large containers or quantities of acetone. Transfer the solvent in a ventilated laboratory hood. Do not use acetone near any open flame. For generation of acetone vapor, use a spark free heat source.

6.1.2. Any asbestos spills should be cleaned up immediately to prevent dispersal of fibers. Prudence should be exercised to avoid contamination of laboratory facilities or exposure of personnel to asbestos. Asbestos spills should be cleaned up with wet methods and/or a High Efficiency Particulate Air (HEPA) filtered vacuum.

CAUTION: Do not use a vacuum without a HEPA filter — It will disperse fine asbestos fibers in the air.

6.2. Equipment

6.2.1. Phase contrast microscope with binocular or trinocular head.

6.2.2. Widefield or Huygenian 10X eyepieces (NOTE: The eyepiece containing the graticule must be a focusing eyepiece. Use a 40X phase objective with a numerical aperture of 0.65 to 0.75).

6.2.3. Kohler illumination (if possible) with green or blue filter.

6.2.4. Walton–Beckett Graticule, type G–22 with 100 plus or minus 2μm projected diameter.

6.2.5. Mechanical stage. A rotating mechanical stage is convenient for use with polarized light.

6.2.6. Phase telescope.

6.2.7. Stage micrometer with 0.01–mm subdivisions.

6.2.8. Phase–shift test slide, mark II (Available from PTR optics Ltd., and also McCrone).

6.2.9. Precleaned glass slides, 25 mm X 75 mm. One end can be frosted for convenience in writing sample numbers, etc., or paste–on labels can be used.

6.2.10. Cover glass #1 1/2.

6.2.11. Scalpel (#10, curved blade).

6.2.12. Fine tipped forceps.

6.2.13. Aluminum block for clearing filter (see Appendix D).

6.2.14. Automatic adjustable pipette, 100–to 500–μL.

6.2.15. Micropipette, 5 μL.

6.3. Reagents

6.3.1. Acetone (HPLC grade).

6.3.2. Triacetin (glycerol triacetate).

6.3.3. Lacquer or nail polish.

6.4. Standard Preparation

A way to prepare standard asbestos samples of known concentration has not been developed. It is possible to prepare replicate samples of nearly equal concentration. This has been performed through the PAT program. These asbestos samples are distributed by the AIHA to participating laboratories.

Since only about one–fourth of a 25–mm sample membrane is required for an asbestos count, any PAT sample can serve as a "standard" for replicate counting.

6.5. Sample Mounting

NOTE: See Safety Precautions in Section 6.1. before proceeding. The objective is to produce samples with a smooth (non–grainy) background in a medium with a refractive index of approximately 1.46. The technique below collapses the filter for easier focusing and produces permanent mounts which are useful for quality control and interlaboratory comparison.

An aluminum block or similar device is required for sample preparation.

6.5.1. Heat the aluminum block to about 70 deg.C. The hot block should not be used on any surface that can be damaged by either the heat or from exposure to acetone.

6.5.2. Ensure that the glass slides and cover glasses are free of dust and fibers.

6.5.3. Remove the top plug to prevent a vacuum when the cassette is opened. Clean the outside of the cassette if necessary. Cut the seal and/or tape on the cassette with a razor blade. Very carefully separate the base from the extension cowl, leaving the filter and backup pad in the base.

6.5.4. With a rocking motion cut a triangular wedge from the filter using the scalpel. This wedge should be one–sixth to one–fourth of the filter. Grasp the filter wedge with the forceps on the perimeter of the filter which was clamped between the cassette pieces. DO NOT TOUCH the filter with your finger. Place the filter on the glass slide sample side up. Static electricity will usually keep the filter on the slide until it is cleared.

6.5.5. Place the tip of the micropipette containing about 200 μL acetone into the aluminum block. Insert the glass slide into the receiving slot in the aluminum block. Inject the acetone into the block with slow, steady pressure on the plunger while holding the pipette firmly in place. Wait 3 to 5 seconds for the filter to clear, then remove the pipette and slide from the aluminum block.

6.5.6. Immediately (less than 30 seconds) place 2.5 to 3.5 μL of triacetin on the filter (NOTE: Waiting longer than 30 seconds will result in increased index of refraction and decreased contrast between the fibers and the preparation. This may also lead to separation of the cover slip from the slide).

6.5.7. Lower a cover slip gently onto the filter at a slight angle to reduce the possibility of forming air bubbles. If more than 30 seconds have elapsed between acetone exposure and triacetin application, glue the edges of the cover slip to the slide with lacquer or nail polish.

6.5.8. If clearing is slow, warm the slide for 15 min on a hot plate having a surface temperature of about 50 deg.C to hasten clearing. The top of the hot block can be used if the slide is not heated too long.

6.5.9. Counting may proceed immediately after clearing and mounting are completed.

6.6. Sample Analysis

Completely align the microscope according to the manufacturer's instructions. Then, align the microscope using the following general alignment routine at the beginning of every counting session and more often if necessary.

6.6.1. Alignment

(1) Clean all optical surfaces. Even a small amount of dirt can significantly degrade the image.

(2) Rough focus the objective on a sample.

(3) Close down the field iris so that it is visible in the field of view. Focus the image of the iris with the condenser focus. Center the image of the iris in the field of view.

(4) Install the phase telescope and focus on the phase rings. Critically center the rings. Misalignment of the rings results in astigmatism which will degrade the image.

(5) Place the phase–shift test slide on the microscope stage and focus on the lines. The analyst must see line set 3 and should see at least parts of 4 and 5 but, not see line set 6 or 6. A microscope/microscopist combination which does not pass this test may not be used.

6.6.2. Counting Fibers

(1) Place the prepared sample slide on the mechanical stage of the microscope. Position the center of the wedge under the objective lens and focus upon the sample.

(2) Start counting from one end of the wedge and progress along a radial line to the other end (count in either direction from perimeter to wedge tip). Select fields randomly, without looking into the eyepieces, by slightly advancing the slide in one direction with the mechanical stage control.

(3) Continually scan over a range of focal planes (generally the upper 10 to 15 μm of the filter surface) with the fine focus control during each field count. Spend at least 5 to 15 seconds per field.

(4) Most samples will contain asbestos fibers with fiber diameters less than 1 μm. Look carefully for faint fiber images. The small diameter fibers will be very hard to see. However, they are an important contribution to the total count.

(5) Count only fibers equal to or longer than 5 μm. Measure the length of curved fibers along the curve.

(6) Count fibers which have a length to width ratio of 3:1 or greater.

(7) Count all the fibers in at least 20 fields. Continue counting until either 100 fibers are counted or 100 fields have been viewed; whichever occurs first. Count all the fibers in the final field.

(8) Fibers lying entirely within the boundary of the Walton–Beckett graticule field shall receive a count of 1. Fibers crossing the boundary once, having one end within the circle shall receive a count of 1/2. Do not count any fiber that crosses the graticule boundary more than once. Reject and do not count any other fibers even though they may be visible outside the graticule area. If a fiber touches the circle, it is considered to cross the line.

(9) Count bundles of fibers as one fiber unless individual fibers can be clearly identified and each individual fiber is clearly not connected to another counted fiber. See Figure 1 of this appendix for counting conventions.

(10) Record the number of fibers in each field in a consistent way such that filter non–uniformity can be assessed.

(11) Regularly check phase ring alignment.

(12) When an agglomerate (mass of material) covers more than 25% of the field of view, reject the field and select another. Do not include it in the number of fields counted.

(13) Perform a "blind recount" of 1 in every 10 filter wedges (slides). Re-label the slides using a person other than the original counter.

6.7. Fiber Identification

As previously mentioned in Section 1.3., PCM does not provide positive confirmation of asbestos fibers. Alternate differential counting techniques should be used if discrimination is desirable. Differential counting may include primary discrimination based on morphology, polarized light analysis of fibers, or modification of PCM data by Scanning Electron or Transmission Electron Microscopy.

A great deal of experience is required to routinely and correctly perform differential counting. It is discouraged unless it is legally necessary. Then, only if a fiber is obviously not asbestos should it be excluded from the count. Further discussion of this technique can be found in reference 8.10. If there is a question whether a fiber is asbestos or not, follow the rule: "WHEN IN DOUBT, COUNT."

6.8. Analytical Recommendations — Quality Control System

6.8.1. All individuals performing asbestos analysis must have taken the NIOSH course for sampling and evaluating airborne asbestos or an equivalent course.

6.8.2. Each laboratory engaged in asbestos counting shall set up a slide trading arrangement with at least two other laboratories in order to compare performance and eliminate inbreeding of error. The slide exchange occurs at least semiannually. The round robin results shall be posted where all analysts can view individual analyst's results.

6.8.3. Each laboratory engaged in asbestos counting shall participate in the Proficiency Analytical Testing Program, the Asbestos Analyst Registry or equivalent.

6.8.4. Each analyst shall select and count prepared slides from a "slide bank". These are quality assurance counts. The slide bank shall be prepared using uniformly distributed samples taken from the workload. Fiber densities should cover the entire range routinely analyzed by the laboratory. These slides are counted blind by all counters to establish an original standard deviation. This historical distribution is compared with the quality assurance counts. A counter must have 95% of all quality control samples counted within three standard deviations of the historical mean. This count is then integrated into a new historical mean and standard deviation for the slide.

The analyses done by the counters to establish the slide bank may be used for an interim quality control program if the data are treated in a proper statistical fashion.

7. Calculations

7.1. Calculate the estimated airborne asbestos fiber concentration on the filter sample using the following formula:

$$AC = \frac{\left[\left(\frac{FB}{FL}\right) - \left(\frac{BFB}{BFL}\right)\right] \times ECA}{1000 \times FR \times T \times MFA}$$

where:

AC = Airborne fiber concentration

FB = Total number of fibers greater than 5 μm counted

FL = Total number of fields counted on the filter

BFB = Total number of fibers greater than 5 μm counted in the blank

BFL = Total number of fields counted on the blank

ECA = Effective collecting area of filter (385 mm(2) nominal for a 25 – mm filter.)

FR = Pump flow rate (L/min)

MFA = Microscope count field area (mm(2)). This is 0.00785 mm(2) for a Walton-Beckett Graticule.

T = Sample collection time (min)

1,000 = Conversion of L to cc

NOTE: The collection area of a filter is seldom equal to 385 mm(2). It is appropriate for laboratories to routinely monitor the exact diameter using an inside micrometer. The collection area is calculated according to the formula:

Area = $\pi\ (d/2)^2$

7.2. Short-Cut Calculation

Since a given analyst always has the same interpupillary distance, the number of fields per filter for a particular analyst will remain constant for a given size filter. The field size for that analyst is constant (i.e. the analyst is using an assigned microscope and is not changing the reticle).

For example, if the exposed area of the filter is always 385 mm(2) and the size of the field is always 0.00785 mm(2) the number of fields per filter will always be 49,000. In addition it is necessary to convert liters of air to cc. These three constants can then be combined such that ECA/(1,000 x MFA)=49. The previous equation simplifies to:

$$AC = \frac{\left(\frac{FB}{FL}\right) - \left(\frac{BFB}{BFL}\right) \times 49}{FR \times T}$$

7.3. Recount Calculations

As mentioned in step 13 of Section 6.6.2., a "blind recount" of 10% of the slides is performed. In all cases, differences will be observed between the first and second counts of the same filter wedge. Most of these differences will be due to chance alone, that is, due to the random variability (precision) of the count method. Statistical recount criteria enables one to decide whether observed differences can be explained due to chance alone or are probably due to systematic differences between analysts, microscopes, or other biasing factors.

The following recount criterion is for a pair of counts that estimate AC in fibers/cc. The criterion is given at the type-I error level. That is, there is 5% maximum risk that we will reject a pair of counts for the reason that one might be biased, when the large observed difference is really due to chance.

Reject a pair of counts if:

$$\left|\sqrt{AC_2} - \sqrt{AC_1}\right| > 2.78 \times \left(\sqrt{AC_{AVG}}\right) \times CVFB$$

Where:

AC(1) = lower estimated airborne fiber concentration

AC(2) = higher estimated airborne fiber concentration

AC(avg) = average of the two concentration estimates

CV(FB) = CV for the average of the two concentration estimates

If a pair of counts are rejected by this criterion then, recount the rest of the filters in the submitted set. Apply the test and reject any other pairs failing the test. Rejection shall include a memo to the industrial hygienist stating that the sample failed a statistical test for homogeneity and the true air concentration may be significantly different than the reported value.

7.4. Reporting Results

Report results to the industrial hygienist as fibers/cc. Use two significant figures. If multiple analyses are performed on a sample, an average of the results is to be reported unless any of the results can be rejected for cause.

8. References

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8.7. Asbestos, Tremolite, Anthophyllite, and Actinolite, Code of Federal Regulations 1910.1001. 1988. pp. 711-752.

8.8. Criteria for a Recommended Standard — Occupational Exposure to Asbestos (DHEW/NIOSH Pub. No. HSM 72-10267), National Insti-

tute for Occupational Safety and Health, NIOSH, Cincinnati, OH, 1972. pp. III-1 — III-24.

8.9. Leidel, N.A., Bayer, S.G., Zumwalde, R.D., Busch, K.A., USPHS/NIOSH Membrane Filter Method for Evaluating Airborne Asbestos Fibers (DHEW/NIOSH Pub. No. 79-127). National Institute for Occupational Safety and Health, Cincinnati, OH, 1979.

8.10. Dixon, W.C., Applications of Optical Microscopy in Analysis of Asbestos and Quartz, Analytical Techniques in Occupational Health Chemistry, edited by D.D. Dollberg and A.W. Verstuyft. Wash. D.C.: American Chemical Society, (ACS Symposium Series 120) 1980. pp. 13-41.

Quality Control

The OSHA asbestos regulations require each laboratory to establish a quality control program. The following is presented as an example of how the OSHA-SLTC constructed its internal CV curve as part of meeting this requirement. Data is from 395 samples collected during OSHA compliance inspections and analyzed from October 1980 through April 1986.

Each sample was counted by 2 to 5 different counters independently of one another. The standard deviation and the CV statistic was calculated for each sample. This data was then plotted on a graph of CV vs. fibers/mm$^2$. A least squares regression was performed using the following equation:

$CV = \text{antilog}_{10}\,[A(\log_{10}(x))^2+B(\log_{10}(x))+C]$

where:

x = the number of fibers/mm$^2$

Application of least squares gave:

A = 0.182205

B = 0.973343

C = 0.327499

Using these values, the equation becomes:

$CV = \text{antilog}_{10}\,[0.182205(\log_{10}(x))^2 + 0.973343(\log_{10}(x)) + 0.327499]$

Sampling Pump Flow Rate Corrections

This correction is used if a difference greater than 5% in ambient temperature and/or pressure is noted between calibration and sampling sites and the pump does not compensate for the differences.

$$Q_{act} = Q_{cal} \times \sqrt{\left(\frac{P_{cal}}{P_{act}}\right) \times \left(\frac{T_{act}}{T_{cal}}\right)}$$

Where:

Q(act) = actual flow rate

Q(cal) = calibrated flow rate (if a rotameter was used, the rotameter value)

P(cal) = uncorrected air pressure at calibration

P(act) = uncorrected air pressure at sampling site

T(act) = temperature at sampling site (K)

T(cal) = temperature at calibration (K)

Walton-Beckett Graticule

When ordering the Graticule for asbestos counting, specify the exact disc diameter needed to fit the ocular of the microscope and the diameter (mm) of the circular counting area. Instructions for measuring the dimensions necessary are listed:

(1) Insert any available graticule into the focusing eyepiece and focus so that the graticule lines are sharp and clear.

(2) Align the microscope.

(3) Place a stage micrometer on the microscope object stage and focus the microscope on the graduated lines.

(4) Measure the magnified grid length, PL (μm), using the stage micrometer.

(5) Remove the graticule from the microscope and measure its actual grid length, AL (mm). This can be accomplished by using a mechanical stage fitted with verniers, or a jeweler's loupe with a direct reading scale.

(6) Let D = 100 μm. Calculate the circle diameter, d(c)(mm), for the Walton-Beckett graticule and specify the diameter when making a purchase:

$$d_c = \frac{AL \times D}{PL}$$

Example: If PL = 108 μm, AL = 2.93 mm and D = 100 μm, then,

$$d_c = \frac{2.93 \times 100}{108} = 2.71\text{mm}$$

(7) Each eyepiece-objective-reticle combination on the microscope must be calibrated. Should any of the three be changed (by zoom adjustment, disassembly, replacement, etc.), the combination must be recalibrated. Calibration may change if interpupillary distance is changed.

Measure the field diameter, D (acceptable range: 100 plus or minus 2 μm) with a stage micrometer upon receipt of the graticule from the manufacturer. Determine the field area (mm(2)).

Field Area = $\pi(D/2)^2$

If D = 100 μm = 0.1 mm, then

Field Area = $\pi(0.1\text{ mm}/2)^2 = 0.00785\text{mm}^2$

The Graticule is available from: Graticules Ltd., Morley Road, Tonbridge TN9 IRN, Kent, England (Telephone 011-44-732-359061). Also available from PTR Optics Ltd., 145 Newton Street, Waltham, MA 02154 [telephone (617) 891-6000] or McCrone Accessories and Components, 2506 S. Michigan Ave., Chicago, IL 60616 [phone (312)-842-7100]. The graticule is custom made for each microscope.

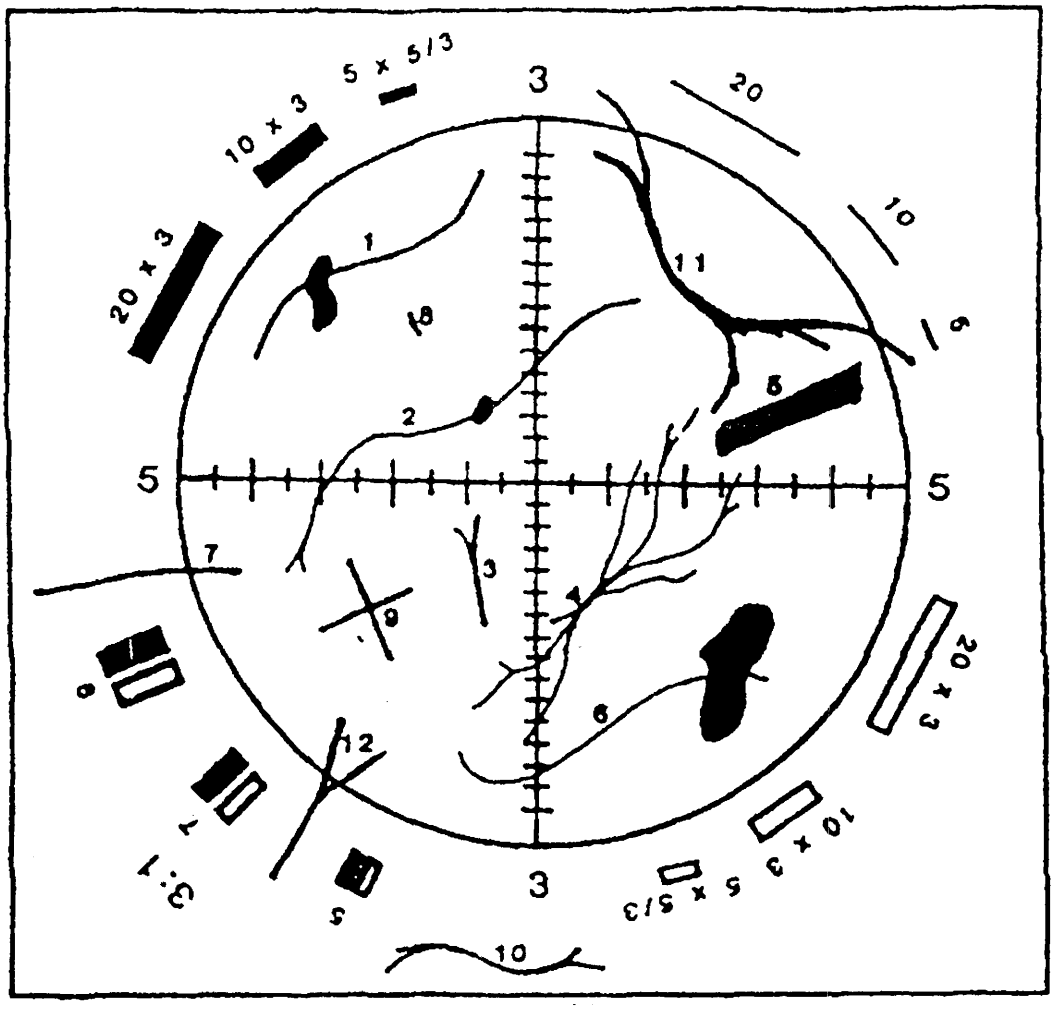



**Figure 1: Walton–Beckett Graticule with some explanatory fibers.**

Counts for the Fibers in the Figure

| *Structure No.* | *Count* | *Explanation* |
|---|---|---|
| 1 to 6 | 1 | Single fibers all contained within the Circle. |
| 7 | 1/2 | Fiber crosses circle once. |
| 8 | 0 | Fiber too short. |
| 9 | 2 | Two crossing fibers. |
| 10 | 0 | Fiber outside graticule. |
| 11 | 0 | Fiber crosses graticule twice. |
| 12 | 1/2 | Although split, fiber only crosses once. |

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix B to section 1529 filed 2–15–91; operative 2–15–91 pursuant to Government Code section 11346.2(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1 (Register 91, No. 45).
3. Editorial correction of Appendix B (Register 95, No. 41).
4. Repealer and new appendix and NOTE filed 5–3–96; operative 7–3–96 (Register 96, No. 18).

## Appendix C

### Qualitative and Quantitative Fit Testing Procedures, Mandatory

[See Section 5144, Appendix A]

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix C to section 1529 filed 2–15–91; operative 2–15–91 pursuant to Government Code section 11346(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1. (Register 91, No. 45).
3. Amendment of appendix and NOTE filed 5–3–96; operative 7–3–96 (Register 96, No. 18).
4. Amendment repealing Appendix C and adding editorial reference filed 8–25–98; operative 11–23–98 (Register 98, No. 35).

## Appendix D

### Medical Questionnaires Manditory

This mandatory appendix contains the medical questionnaires that must be administered to all employees who are exposed to asbestos above the permissible exposure limit, and who will therefore be included in their employer's medical surveillance program. Part 1 of the appendix contains the Initial Medical Questionnaire, which must be obtained for all new hires who will be covered by the medical surveillance requirements. Part 2 includes the abbreviated Periodical Medical Questionnaire, which must be administered to all employees who are provided periodic examinations under the medical surveillance provisions of the standard.

Part 1
INITIAL MEDICAL QUESTIONNAIRE

1. NAME _____

2. SOCIAL SECURITY # ___ ___ ___ ___ ___ ___ ___ ___ ___
(1) (2) (3) (4) (5) (6) (7) (8) (9)

3. CLOCK NUMBER ___ ___ ___ ___ ___ ___
(10) (11) (12) (13) (14) (15)

4. PRESENT OCCUPATION _____

5. PLANT _____

6. ADDRESS _____

7. _____
(Zip Code)

8. TELEPHONE NUMBER _____

9. INTERVIEWER _____

10. DATE _____ ___ ___ ___ ___ ___ ___
(16) (17) (18) (19) (20) (21)

11. Date of Birth _____ ___ ___ ___ ___ ___ ___
Month Day Year (22) (23) (24) (25) (26) (27)

12. Place of Birth _____

13 Sex
1. Male ___
2. Female ___

14. What is your marital status?
1. Single ___
2. Married ___
3. Widowed ___
4. Separated/ Divorced ___

15. Race
1. White ___
2. Black ___
3. Asian ___
4. Hispanic ___
5. Indian ___
6. Other ___

16. What is the highest grade completed in school? _____
(For example 12 years is completion of high school)

OCCUPATIONAL HISTORY

17A. Have you ever worked full time (30 hours per week or more) for 6 months or more?
1. Yes ___ 2. No ___

IF YES TO 17A:

B. Have you ever worked for a year or more in any dusty job?
1. Yes ___ 2. No ___
3. Does Not Apply ___

Specify job/industry _____ Total Years Worked _____

Was dust exposure: 1. Mild __ 2. Moderate __ 3. Severe __

C. Have you even been exposed to gas or chemical fumes in your work? 1. Yes ___ 2. No ___
Specify job/industry _____ Total Years Worked ___

Was exposure: 1. Mild __ 2. Moderate __ 3. Severe __

D. What has been your usual occupation or job—the one you have worked at the longest?

1. Job occupation _____
2. Number of years employed in this occupation _____
3. Position/job title _____
4. Business, field or industry _____

(Record on lines the years in which you have worked in any of these industries. e.g. 1960–1969)

Have you ever worked:

| | YES | NO |
|---|---|---|
| E. In a mine? | ☐ | ☐ |
| F. In a quarry? | ☐ | ☐ |
| G. In a foundry? | ☐ | ☐ |
| H. In a pottery? | ☐ | ☐ |
| I. In a cotton, flax or hemp mill? | ☐ | ☐ |
| J. With asbestos? | ☐ | ☐ |

18 PAST MEDICAL HISTORY

| | YES | NO |
|---|---|---|
| A. Do you consider yourself to be in good health? | ☐ | ☐ |
| If "NO" state reason _____ | | |
| B. Have you any defect of vision? | ☐ | ☐ |
| If "YES" state nature of defect _____ | | |
| C. Have you any hearing defect? | ☐ | ☐ |
| If "YES" state nature of defect _____ | | |
| D. Are you suffering from or have you ever suffered from: | | |
| a. Epilepsy (or fits, seizures, convulsions)? | ☐ | ☐ |
| b. Rheumatic fever? | ☐ | ☐ |
| c. Kidney disease? | ☐ | ☐ |
| d. Bladder disease? | ☐ | ☐ |
| e. Diabetes? | ☐ | ☐ |
| f. Jaundice? | ☐ | ☐ |

19. CHEST COLDS AND CHEST ILLNESSES

19A. If you get a cold, does it usually go to your chest? (Usually means more than 1/2 the time) 1. Yes __ 2. No __ 3. Don't get colds __

20A. During then past 3 years, have you had any chest illnesses that have kept you off work, indoors at home, or in bed? — 1. Yes __ 2. No __

IF YES TO 20A

B. Did you produce phlegm with any of these chest illnesses? — 1. Yes __ 2. No __ 3. Does not apply __

C. In the last 3 years, how many such illnesses with (increased) phlegm did you have which lasted a week or more? — Number of illnesses __ No such illnesses __

21. Did you have any lung trouble before the age of 16? — 1. Yes __ 2. No __

22. Have you ever had any of the following?

1A. Attacks of bronchitis? — 1. Yes __ 2. No __

IF YES TO 1A:

B. Was it confirmed by a doctor? — 1. Yes __ 2. No __ 3. Does Not Apply __

C. At what age was your first attack? — Age in Years __ Does Not Apply __

2A. Pneumonia (include bronchopneumonia)? — 1. Yes __ 2. No __

IF YES TO 2A:

B. Was it confirmed by a doctor? — 1. Yes __ 2. No __ 3. Does Not Apply __

C. At what age did you first have it? — Age in Years __ Does Not Apply __

3A. Hay fever? — 1. Yes __ 2. No __

IF YES TO 3A:

B. Was it confirmed by a doctor? — 1. Yes __ 2. No __ 3. Does Not Apply __

C. At what age did it start? — Age in Years __ Does Not Apply __

23A. Have you ever had chronic bronchitis? — 1. Yes __ 2. No __

IF YES TO 23A:

B. Do you still have it? — 1. Yes __ 2. No __ 3. Does Not Apply __

C. Was it confirmed by a doctor? — 1. Yes __ 2. No __ 3. Does Not Apply __

D. At what age did it start? — Age in Years __ Does Not Apply __

24A. Have you ever had emphysema? — 1. Yes __ 2. No __

IF YES TO 24A:

B. Do you still have it? — 1. Yes __ 2. No __ 3. Does Not Apply __

C. Was it confirmed by a doctor? — 1. Yes __ 2. No __ 3. Does Not Apply __

D. At what age did it start? — Age in Years __ Does Not Apply __

25A. Have you ever had asthma? 1. Yes __ 2. No __

IF YES TO 25A:

B. Do you still have it? 1. Yes __ 2. No __ 3. Does Not Apply __

C. Was it confirmed by a doctor? 1. Yes __ 2. No __ 3. Does Not Apply __

D. At what age did it start? Age in Years __ Does Not Apply __

E. If you no longer have it, at what age did it stop? Age stopped __ Does Not Apply __

26. Have you ever had:

A. Any other chest illness? 1. Yes __ 2. No __
If yes, please specify _____

B. Any chest operations? 1. Yes __ 2. No __
If yes, please specify _____

C. Any chest injuries? 1. Yes __ 2. No __
If yes, please specify _____

27A. Has a doctor ever told you that you had heart trouble? 1. Yes __ 2. No __

IF YES TO 27A:

B. Have you ever had treatment for heart trouble in the past 10 years? 1. Yes __ 2. No __ 3. Does not apply __

28A. Has a doctor ever told you that you had high blood pressure? 1. Yes __ 2. No __

IF YES TO 28A:

B. Have you ever had treatment for high blood pressure (hypertension) in the past 10 years? 1. Yes __ 2. No __ 3. Does not apply __

29. When did you last have your chest X-rayed? (Year) __ __ __ __
25 26 27 28

30. Where did you last have your chest X-rayed (if known)? _____
What was the outcome? _____

FAMILY HISTORY

31. Were either of your natural parents ever told by a doctor that they had a chronic lung condition such as:

| | FATHER | | | MOTHER | | |
|---|---|---|---|---|---|---|
| | 1. Yes | 2. No | 3. Don't Know | 1. Yes | 2. No | 3. Don't Know |
| A. Chronic Bronchitis? | ____ | ____ | ____ | ____ | ____ | ____ |
| B. Emphysema? | ____ | ____ | ____ | ____ | ____ | ____ |
| C. Asthma? | ____ | ____ | ____ | ____ | ____ | ____ |
| D. Lung cancer? | ____ | ____ | ____ | ____ | ____ | ____ |
| E. Other chest conditions? | ____ | ____ | ____ | ____ | ____ | ____ |
| F. Is parent currently alive? | ____ | ____ | ____ | ____ | ____ | ____ |

G. Please Specify

____ Age if Living
____ Age at Death
____ Don't Know

____ Age if Living
____ Age at Death
____ Don't Know

H. Please specify cause of death

_____ _____

COUGH

32A. Do you usually have a cough? (Count a cough with first smoke or on first going out of doors. Exclude clearing of throat.) [If no, skip to question 32C.] 1. Yes __ 2. No __

B. Do you usually cough as much as 4 to 6 times a day 4 or more days out of the week? 1. Yes __ 2. No __

C. Do you usually cough at all on getting up or first thing in the morning? 1. Yes __ 2. No __

D. Do you usually cough at all during the rest of the day or at night? 1. Yes __ 2. No __

IF YES TO ANY OF ABOVE (32A, B, C, OR D), ANSWER THE FOLLOWING. IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO NEXT PAGE.

E. Do you usually cough like this on most days for 3 consecutive months or more during the year? 1. Yes __ 2. No __ 3. Does not apply __

F. For how many years have you had the cough? Number of Years __ Does Not Apply __

33A. Do you usually bring up phlegm from your chest? (Count phlegm with the first smoke or on first going out of doors. Exclude phlegm from the nose. Count swallowed phlegm.) (If no, skip to 33C) 1. Yes __ 2. No __

B. Do you usually bring up phlegm like this as much as twice a day 4 or more days out of the week? 1. Yes __ 2. No __

C. Do you usually bring up phlegm at all on getting up or first thing in the morning? 1. Yes __ 2. No __

D. Do you usually bring up phlegm at all during the rest of the day or at night? 1. Yes __ 2. No __

IF YES TO ANY OF THE ABOVE (33A, B, C, OR D), ANSWER THE FOLLOWING:
IF NO TO ALL, CHECK DOES NOT APPLY AND SKIP TO 34A.

E. Do you bring up phlegm like this on most days for 3 consecutive months or more during the year? 1. Yes __ 2. No __ 3. Does not apply __

F. For how many years have you had trouble with phlegm? Number of years __ Does not apply __

EPISODES OF COUGH AND PHLEGM

34A. Have you had periods or episodes of (increased*) cough and phlegm lasting for 3 weeks or more each year? *(For persons who usually have cough and/or phlegm) 1. Yes __ 2. No __

IF YES TO 34A

B. For how long have you had at least 1 such episode per year? Number of years __ Does not apply __

WHEEZING

35A. Does you chest ever sound wheezy or whistling
1. When you have a cold? 1. Yes __ 2. No __
2. Occasionally apart from colds? 1. Yes __ 2. No __
3. Most days or nights? 1. Yes __ 2. No __

IF YES TO 1, 2, or 3 in 35A

B. For how many years has this been present? Number of years __
Does not apply __

36A. Have you ever had an attack of wheezing that has made you feel short of breath? 1. Yes __ 2. No __

B. How old were you when you had your first such attack? Age in years __
Does not apply __

C. Have you had 2 or more such episodes? 1. Yes __ 2. No __
3. Does not apply __

D. Have you ever required medicine or treatment for the(se) attack(s)? 1. Yes __ 2. No __
3. Does not apply __

BREATHLESSNESS

37. If disabled from walking by any condition other than heart or lung disease, please describe and proceed to question 39A.
Nature of condition(s)_____

38A. Are you troubled by shortness of breath when hurrying on the level or walking up a slight hill? 1. Yes __ 2. No __

IF YES TO 38A

B. Do you have a walk slower than people of your age on the level because of breathlessness? 1. Yes __ 2. No __
3. Does not apply __

C. Do you ever have to stop for breath when walking at your own pace on the level? 1. Yes __ 2. No __
3. Does not apply __

D. Do you ever have to stop for breath after walking about 100 yards (or after a few minutes) on the level? 1. Yes __ 2. No __
3. Does not apply __

E. Are you too breathless to leave the house or breathless on dressing or climbing one flight of stairs? 1. Yes __ 2. No __
3. Does not apply __

TOBACCO SMOKING

39A. Have you ever smoked cigarettes? (No means less than 20 packs of cigarettes or 12 oz. of tobacco in a lifetime or less than 1 cigarette a day for 1 year.) 1. Yes __ 2. No __

IF YES TO 39A

B. Do you now smoke cigarettes (as of one month ago) 1. Yes __ 2. No __
3. Does not apply __

C. How old were you when you first started regular cigarette smoking? Age in years __
Does not apply __

D. If you have stopped smoking cigarettes completely, how old were you when you stopped?
Age stopped __
Check if still smoking __
Does not apply __

E. How many cigarettes do you smoke per day now?
Cigarettes per day __
Does not apply __

F. On the average of the entire time you smoked, how many cigarettes did you smoke per day?
Cigarettes per day __
Does not apply __

G. Do or did you inhale the cigarette smoke?
1. Does not apply __
2. Not at all __
3. Slightly __
4. Moderately __
5. Deeply __

40A. Have you ever smoked a pipe regularly? (Yes means more than 12 oz. of tobacco in a lifetime.)
1. Yes __ 2. No __

IF YES TO 40A:

B. 1. How old were you when you started to smoke a pipe regularly?
Age __

2. If you have stopped smoking a pipe completely, how old were you when you stopped?
Age stopped __
Check of still smoking pipe __
Does not apply __

C. On the average over the entire time you smoked a pipe, how much pipe tobacco did you smoke per week?
__ oz. per week (a standard pouch of tobacco contains 1 1/2 oz.)
__ Does not apply

D. How much pipe tobacco are you smoking now?
oz. per week __
Not currently smoking a pipe __

E. Do you or did you inhale the pipe smoke?
1. Never smoked __
2. Not at all __
3. Slightly __
4. Moderately __
5. Deeply __

41A. Have you ever smoked cigars regularly? (Yes means more than 1 cigar a week for a year)
1. Yes __ 2. No __

IF YES TO 41A
FOR PERSONS WHO HAVE EVER SMOKED CIGARS

B. 1. How old were you when you started smoking cigars regularly?
Age __

2. If you have stopped smoking cigars completely, how old were you when you stopped?
Age stopped __
Check if still smoking cigars __
Does not apply __

C. On the average over the entire time you smoked cigars, how many cigars did you smoke per week?
Cigars per week __
Does not apply __

D. How many cigars are you smoking per week now?
Cigars per week __
Check if not smoking cigars currently __

E. Do or did you inhale the cigar smoke?

1. Never smoked __
2. Not at all __
3. Slightly __
4. Moderately __
5. Deeply __

Signature _____ Date_____



Register 99. No. 28; 7-9-99

Part 2
PERIODIC MEDICAL QUESTIONNAIRE

1. NAME _____

2. SOCIAL SECURITY # ___ ___ ___ ___ ___ ___ ___ ___ ___
1 2 3 4 5 6 7 8 9

3. CLOCK NUMBER ___ ___ ___ ___ ___ ___
10 11 12 13 14 15

4. PRESENT OCCUPATION _____

5. PLANT _____

6. ADDRESS _____

7. _____
(Zip Code)

8. TELEPHONE NUMBER _____

9. INTERVIEWER _____

10. DATE _____ ___ ___ ___ ___ ___ ___
16 17 18 19 20 21

11. What is your marital status?
1. Single ___
2. Married ___
3. Widowed ___
4. Separated/ Divorced ___

12. OCCUPATIONAL HISTORY

12A. In the past year, did you work full time (30 hours per week or more) for 6 months or more? 1. Yes __ 2. No __

IF YES TO 12A:

12B. In the past year, did you work in a dusty job? 1. Yes __ 2. No __ 3. Does not apply __

12C. Was dust exposure: 1. Mild ____ 2. Moderate___ 3. Severe____

12D. In the past year, were you exposed to gas or chemical fumes in your work? 1. Yes __ 2. No __

12E. Was exposure: 1. Mild ____ 2. Moderate___ 3. Severe____

12F. In the past year, what was your:
1. Job/occupation?_____
2. Position/job title?_____

13. RECENT MEDICAL HISTORY

13A. Do you consider yourself to be in good heath? Yes __ No __

IF NO, state reason _____

13B. In the past year, have you developed:

| | Yes | No |
|---|---|---|
| Epilepsy? | ___ | ___ |
| Rheumatic fever? | ___ | ___ |
| Kidney disease? | ___ | ___ |
| Bladder disease? | ___ | ___ |
| Diabetes? | ___ | ___ |
| Jaundice? | ___ | ___ |
| Cancer? | ___ | ___ |

14. CHEST COLDS AND CHEST ILLNESSES

14A. If you get a cold, does it usually go to your chest? (Usually means more than 1/2 the time)

1. Yes __ 2 No. __
3. Don't get colds __

15A. During the past year, have you had any chest illnesses that have kept you off work, indoors at home, or in bed?

1. Yes __ 2 No. __
3. Does Not Apply __

IF YES TO 15A:

15B. Did you produce phlegm with any of these chest illnesses?

1. Yes __ 2 No. __
3. Does Not Apply __

15C. In the past year, how many such illnesses with (increased) phlegm did you have which lasted a week or more?

Number of illnesses __
No such illnesses __

16. RESPIRATORY SYSTEM

In the past year have you had:

| | Yes or No | Further Comment on Positive Answers |
|---|---|---|
| Asthma | ____ | |
| Bronchitis | ____ | |
| Hay Fever | ____ | |
| Other Allergies | ____ | |

| | Yes or No | Further Comment on Positive Answers |
|---|---|---|
| Pneumonia | ____ | |
| Tuberculosis | ____ | |
| Chest Surgery | ____ | |
| Other Lung Problems | ____ | |
| Heart Disease | ____ | |

Do you have:

| | Yes or No | Further Comment on Positive Answers |
|---|---|---|
| Frequent colds | ____ | |
| Chronic cough | ____ | |
| Shortness of breath when walking or climbing one flight of stairs | ____ | |

Do you:

| | | |
|---|---|---|
| Wheeze | ____ | |
| Cough up phlegm | ____ | |
| Smoke cigarettes | ____ | Packs per day ____ How many years ____ |

Date _____ Signature _____

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix D to section 1529 filed 2–15–91; operative 2–15–91 pursuant to Government Code section 11346(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1. (Register 91, No. 45).
3. Amendment of appendix and NOTE filed 5–3–96; operative 7–3–96 (Register 96, No. 18).
4. Editorial correction of Part 1, No. 16 (Register 99, No. 28).

## Appendix E

### Interpretation and Classification of Chest Roentgenograms Mandatory

(a) Chest roentgenograms shall be interpreted and classified in accordance with a professionally accepted classification system and recorded on an interpretation form following the format of the CDC/NIOSH (M) 2.8 form. As a minimum, the content within the bold lines of this form (items 1 through 4) shall be included. This form is not to be submitted to NIOSH.

(b) Roentgenograms shall be interpreted and classified only by a B–reader, a board eligible/certified radiologist, or an experienced physician with known expertise in pneumoconioses.

(c) All interpreters, whenever interpreting chest roentgenograms made under this section, shall have immediately available for reference a complete set of the ILO–U/C International Classification of Radiographs for Pneumoconioses, 1980.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix E to section 1529 filed 2–15–91; operative 2–15–91 pursuant to Government Code section 11346(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1. (Register 91, No. 45).
3. Amendment of appendix and NOTE filed 5–3–96; operative 7–3–96 (Register 96, No. 18).

## Appendix F

### Work Practices and Engineering Controls for Class I Asbestos Operations (Non–mandatory)

This is a non–mandatory appendix to the asbestos standards for construction and for shipyards. It describes criteria and procedures for erecting and using negative pressure enclosures for Class I Asbestos Work, when NPEs are used as an allowable control method to comply with subsection (g)(5)(A) of this section. Many small and variable details are involved in the erection of a negative pressure enclosure. OSHA and most participants in the rulemaking agreed that only the major, more performance oriented criteria should be made mandatory. These criteria are set out in subsection (g) of this section. In addition, this appendix includes these mandatory specifications and procedures in its guidelines in order to make this appendix coherent and helpful. The mandatory nature of the criteria which appear in the regulatory text is not changed because they are included in this "non–mandatory" appendix. Similarly, the additional criteria and procedures included as guidelines in the appendix, do not become mandatory because mandatory criteria are also included in these comprehensive guidelines.

In addition, none of the criteria, both mandatory and recommended, are meant to specify or imply the need for use of patented or licensed methods or equipment. Recommended specifications included in this attachment should not discourage the use of creative alternatives which can be shown to reliably achieve the objectives of negative–pressure enclosures.

Requirements included in this appendix, cover general provisions to be followed in all asbestos jobs, provisions which must be followed for all Class I asbestos jobs, and provisions governing the construction and testing of negative pressure enclosures. The first category includes the requirement for use of wet methods, HEPA vacuums, and immediate bagging of waste; Class I work must conform to the following provisions:

* oversight by competent person
* use of critical barriers over all openings to work area
* isolation of HVAC systems
* use of impermeable dropcloths and coverageof all objects within regulated areas

In addition, more specific requirements for NPEs include:

* maintenance of –0.02 inches water gauge within enclosure
* manometric measurements
* air movement away from employees performing removal work
* smoke testing or equivalent for detection of leaks and air direction
* deactivation of electrical circuits, if not provided with ground–fault circuit interrupters.

Planning the Project

The standard requires that an exposure assessment be conducted before the asbestos job is begun [Subsection 1529(f)(1)]. Information needed for that assessment, includes data relating to prior similar jobs, as applied to the specific variables of the current job. The information needed to conduct the assessment will be useful in planning the project, and in complying with any reporting requirements under this standard, when significant changes are being made to a control system listed in the standard, [see also those of USEPA (40 CFR 61, subpart M). Thus, although the standard does not explicitly require the preparation of a written asbestos removal plan, the usual constituents of such a plan, i.e., a description of the enclosure, the equipment, and the procedures to be used throughout the project, must be determined before the enclosure can be erected. The following information should be included in the planning of the system:

A physical description of the work area;

A description of the approximate amount of material to be removed;

A schedule for turning off and sealing existing ventilation systems;

Personnel hygiene procedures;

A description of personal protective equipment and clothing to be worn by employees;

A description of the local exhaust ventilation systems to be used and how they are to be tested;

A description of work practices to be observed by employees;

An air monitoring plan;

A description of the method to be used to transport waste material; and

The location of the dump site.

Materials and Equipment Necessary for Asbestos Removal

Although individual asbsetos removal projects vary in terms of the equipment required to accomplish the removal of the materials, some equipment and materials are common to most asbestos removal operations.

Plastic sheeting used to protect horizontal surfaces, seal HVAC openings or to seal vertical openings and ceilings should have a minimum thickness of 6 mils. Tape or other adhesive used to attach plastic sheeting should be of sufficient adhesive strength to support the weight of the material plus all stresses encountered during the entire duration of the project without becoming detached from the surface.

Other equipment and materials which should be available at the beginning of each project are:

— HEPA Filtered Vacuum is essential for cleaning the work area after the asbestos has been removed. It should have a long hose capable of reaching out–of–the–way places, such as areas above ceiling tiles, behind pipes, etc.

— Portable air ventilation systems installed to provide the negative air pressure and air removal from the enclosure must be equipped with a HEPA filter. The number and capacity of units required to ventilate an enclosure depend on the size of the area to be ventilated. The filters for these systems should be designed in such a manner that they can be replaced when the air flow is reduced by the build–up of dust in the filtration material. Pressure monitoring devices with alarms and strip chart recorders attached to each system to indicate the pressure differential and the loss due to dust buildup on the filter are recommended.

— Water sprayers should be used to keep the asbsetos material as saturated as possible during removal; the sprayers will provide a fine mist that minimizes the impact of the spray on the material.

[The next page is 164.39.]

— Water used to saturate the asbestos containing material can be amended by adding at least 15 milliliters (1/4 ounce) of wetting agent in 1 liter (1 pint) of water. An example of a wetting agent is a 50/50 mixture of polyoxyethylene ether and polyoxyethylene polyglycol ester.
— Backup power supplies are recommended, especially for ventilation systems.
— Shower and bath water should be with mixed hot and cold water faucets. Water that has been used to clean personnel or equipment should either be filtered or be collected and discarded as asbestos waste. Soap and shampoo should be provided to aid in removing dust from the workers' skin and hair.
— See subsections (h) and (i) of this section for appropriate respiratory protection and protective clothing.
— See subsection (k) of this section for required signs and labels.
Preparing the Work Area

Disabling the HVAC Systems: The power to the heating, ventilation and air conditioning systems that service the restricted area must be deactivated and locked off. All ducts, grills, access ports, windows and vents must be sealed off with two layers of plastic to prevent entrainment of contaminated air.

Operating HVAC Systems in the Restricted Area: If components of a HVAC system located in the restricted area are connected to a system that will service another zone during the project, the portion of the duct in the restricted area must be sealed and pressurized. Necessary precautions include caulking the duct joints, covering all cracks and openings with two layers of sheeting, and pressurizing the duct throughout the duration of the project by restricting the return of air flow. The power to the fan supplying the positive pressure should be locked "on" to prevent pressure loss.

Sealing Elevators: If an elevator shaft is located in the restricted area, it should be either shut down or isolated by sealing with two layers of plastic sheeting. The sheeting should provide enough slack to accommodate the pressure changes in the shaft without breaking the air–tight seal.

Removing Mobile Objects: All movable objects should be cleaned and removed from the work area before an enclosure is constructed unless moving the objects creates a hazard. Mobile objects will be assumed to be contaminated and should be either cleaned with amended water and a HEPA vacuum and then removed from the area or wrapped and then disposed of as hazardous waste.

Cleaning and Sealing Surfaces: After cleaning with water and a HEPA vacuum, surfaces of stationary objects should be covered with two layers of plastic sheeting. The sheeting should be secured with duct tape or an equivalent method to provide a tight seal around the object.

Bagging Waste: In addition to the requirement for immediate bagging of waste for disposal, it is further recommended that the waste material be double–bagged and sealed in plastic bags designed for asbestos disposal. The bags should be stored in a waste storage area that can be controlled by the workers conducting the removal. Filters removed from handling units and rubbish removed from the area are to be bagged and handled as hazardous waste.
Constructing the Enclosure

The enclosure should be constructed to provide an air–tight seal around ducts and openings into existing ventilation systems and around penetrations for electrical conduits, telephone wires, water lines, drain pipes, etc. Enclosures should be both airtight and watertight except for those openings designed to provide entry and/or air flow control.

Size: An enclosure should be the minimum volume to encompass all of the working surfaces yet allow unencumbered movement by the worker(s), provide unrestricted air flow past the worker(s), and ensure walking surfaces can be kept free of tripping hazards.

Shape: The enclosure may be any shape that optimizes the flow of ventilation air past the worker(s).

Structural Integrity: The walls, ceilings and floors must be supported in such a manner that portions of the enclosure will not fall down during normal use.

Openings: It is not necessary that the structure be airtight; openings may be designed to direct air flow. Such openings should be located at a distance from active removal operations. They should be designed to draw air into the enclosure under all anticipated circumstances. In the event that negative pressure is lost, they should be fitted with either HEPA filters to trap dust or automatic trap doors that prevent dust from escaping the enclosure. Openings for exits should be controlled by an airlock or a vestibule.

Barrier Supports: Frames should be constructed to support all unsupported spans of sheeting.

Sheeting: Walls, barriers, ceilings and floors should be lined with two layers of plastic sheeting having a thickness of at least 6 mil.

Seams: Seams in the sheeting material should be minimized to reduce the possibilities of accidental rips and tears in the adhesive or connections. All seams in the sheeting should overlap, be staggered and not be located at corners or wall–to–floor joints.

Areas Within an Enclosure: Each enclosure consists of a work area, a decontamination area, and waste storage area. The work area where the asbestos removal operations occur should be separated from both the waste storage area and the contamination control area by physical curtains, doors, and/or airflow patterns that force any airborne contamination back into the work area.

See subsection (j) of this section for requirements for hygiene facilities.

During egress from the work area, each worker should step into the equipment room, clean tools and equipment, and remove gross contamination from clothing by wet cleaning and HEPA vacuuming. Before entering the shower area, foot coverings, head coverings, hand coverings and coveralls are removed and placed in impervious bags for disposal or cleaning. Airline connections from airline respirators with HEPA disconnects and power cables from powered air–purifying respirators (PAPRs) will be disconnected just prior to entering the showering room.
Establishing Negative Pressure Within the Enclosure

Negative Pressure: Air is to be drawn into the enclosure under all anticipated conditions and exhausted through a HEPA filter for 24 hours a day during the entire duration of the project.

Air Flow Tests: Air flow patterns will be checked before removal operations begin, at least once per operating enclosure. The primary test for air flow is to trace air currents with smoke tubes or other visual methods. Flow checks are made at each opening and at each doorway to demonstrate that air is being drawn into the enclosure and to each worker's position to show that air is being drawn away from the breathing zone.

Monitoring Pressure Within the Enclosure: After the initial air flow patterns have been checked, the static pressure must be monitored within the enclosure. Monitoring may be made using manometers, pressure gauges, or combinations of these devices. It is recommended that they be attached to alarms and strip chart recorders at points identified by the design engineer.

Corrective Actions: If the manometers or pressure gauges demonstrate a reduction in pressure differential below the required level, work should cease and the reason for the change investigated and appropriate changes made. The air flow patterns should be retested before work begins again.

Pressure Differential: The design parameters for static pressure differentials between the inside and outside of enclosures typically range from 0.02 to 0.10 inches of water gauge, depending on conditions. All zones inside the enclosure must have less pressure than the ambient pressure outside of the enclosure (–0.02 inches water gauge differential). Design specifications for the differential vary according to the size, configuration, and shape of the enclosure as well as ambient and mechanical air pressure conditions around the enclosure.

Air Flow Patterns: The flow of air past each worker shall be enhanced by positioning the intakes and exhaust ports to remove contaminated air from the worker's breathing zone, by positioning HEPA vacuum cleaners to draw air from the worker's breathing zone, by forcing relatively un-

contaminated air past the worker toward an exhaust port, or by using a combination of methods to reduce the worker's exposure.

Air Handling Unit Exhaust: The exhaust plume from air handling units should be located away from adjacent personnel and intakes for HVAC systems.

Air Flow Volume: The air flow volume (cubic meters per minute) exhausted (removed) from the workplace must exceed the amount of make-up air supplied to the enclosure. The rate of air exhausted from the enclosure should be designed to maintain a negative pressure in the enclosure and air movement past each worker. The volume of air flow removed from the enclosure should replace the volume of the container at every 5 to 15 minutes. Air flow volume will need to be relatively high for large enclosures, enclosures with awkward shapes, enclosures with multiple openings, and operations employing several workers in the enclosure.

Air Flow Velocity: At each opening, the air flow velocity must visibly "drag" air into the enclosure. The velocity of the air flow within the enclosure must be adequate to remove airborne contamination from each worker's breathing zone without disturbing the asbestos-containing material on surfaces.

Airlocks: Airlocks are mechanisms on doors and curtains that control the air flow patterns in the doorways. If air flow occurs, the patterns through doorways must be such that the air flows toward the inside of the enclosure. Sometimes vestibules, double doors, or double curtains are used to prevent air movement through the doorways. To use a vestibule, a worker enters a chamber by opening the door or curtain and then closing the entry before opening the exit door or curtain.

Airlocks should be located between the equipment room and shower room, between the shower room and the clean room, and between the waste storage area and the outside of the enclosure. The air flow between the adjacent rooms must be checked using smoke tubes or other visual tests to ensure the flow patterns draw air toward the work area without producing eddies.

Monitoring for Airborne Concentrations

In addition to the breathing zone samples taken as outlined in subsection (f) of this section, samples of air should be taken to demonstrate the integrity of the enclosure, the cleanliness of the clean room and shower area, and the effectiveness of the HEPA filter. If the clean room is shown to be contaminated, the room must be relocated to an uncontaminated area.

Samples taken near the exhaust of portable ventilation systems must be done with care.

General Work Practices

Preventing dust dispersion is the primary means of controlling the spread of asbestos within the enclosure. Whenever practical, the point of removal should be isolated, enclosed, covered, or shielded from the workers in the area. Waste asbestos containing materials must be bagged during or immediately after removal; the material must remain saturated until the waste container is sealed.

Waste material with sharp points or corners must be placed in hard air-tight containers rather than bags.

Whenever possible, large components should be sealed in plastic sheeting and removed intact.

Bags or containers of waste will be removed to the waste holding area, washed, and wrapped in a bag with the appropriate labels.

Cleaning the Work Area

Surfaces within the work area should be kept free of visible dust and debris to the extent feasible. Whenever visible dust appears on surfaces, the surfaces within the enclosure must be cleaned by wiping with a wet sponge, brush, or cloth and then vacuumed with a HEPA vacuum.

All surfaces within the enclosure should be cleaned before the exhaust ventilation system is deactivated and the enclosure is disassembled. An approved encapsulant may be sprayed onto areas after the visible dust has been removed.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix F to section 1529 filed 2–15–91; operative 2–15–91 pursuant to Government Code section 11346.2(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1. (Register 91, No. 45).
3. Repealer and new appendix and NOTE filed 5–3–96; operative 7–3–96 (Register 96, No. 18).

## Appendix G

NOTE: Authority cited: Sections 142.3, 6501.5, 9020, 9021.5, 9030, and 9040, Labor Code. Reference: Sections 142.3, 6501.5, 6501.7, 6501.8, 6501.9, 6502, 9003, 9004(b), 9005, 9006, 9009, 9020, 9021.5, 9030, and 9040, Labor Code, and Section 25910, Health and Safety Code.

HISTORY

1. New Appendix G to section 1529 filed 2–15–91; operative 2–15–91 pursuant to Government Code section 11346.2(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1. (Register 91, No. 45).
3. Editorial correction of Figure G–1 (Register 95, No. 36).
4. Repealer of appendix filed 5–3–96; operative 7–3–96 (Register 96, No. 18).

## Appendix H

### Substance Technical Information for Asbestos Non-Mandatory

I. Substance Identification

A. Substance: "Asbestos" is the name of a class of magnesium-silicate minerals that occur in fibrous form. Minerals that are included in this group are chrysotile, crocidolite, amosite, anthophyllite asbestos, tremolite asbestos, and actinolite asbestos.

B. Asbestos is used in the manufacture of heat-resistant clothing, automotive brake and clutch linings, and a variety of building materials including floor tiles, roofing felts, ceiling tiles, asbestos-cement pipe and sheet, and fire-resistant drywall. Asbestos is also present in pipe and boiler insulation materials, and in sprayed-on materials located on beams, in crawlspaces, and between walls.

C. The potential for an asbestos-containing product to release breathable fibers depends on its degree of friability. Friable means that the material can be crumbled with hand pressure and is therefore likely to emit fibers. The fibrous fluffy sprayed-on materials used for fireproofing, insulation, or sound proofing are considered to be friable, and they readily release airborne fibers if disturbed. Materials such as vinyl-asbestos floor tile or roofing felt are considered non-friable if intact and generally do not emit airborne fibers unless subjected to sanding, sawing and other aggressive operations. Asbestos-cement pipe or sheet can emit airborne fibers if the materials are cut or sawed, or if they are broken.

D. Permissible exposure: Exposure to airborne asbestos fibers may not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) averaged over the 8-hour workday, and 1 fiber per cubic centimeter of air (1.0 f/cc) averaged over a 30 minute work period.

II. Health Hazard Data

A. Asbestos can cause disabling respiratory disease and various types of cancers if the fibers are inhaled. Inhaling or ingesting fibers from contaminated clothing or skin can also result in these diseases. The symptoms of these diseases generally do not appear for 20 or more years after initial exposure.

B. Exposure to asbestos has been shown to cause lung cancer, mesothelioma, and cancer of the stomach and colon. Mesothelioma is a rare cancer of the thin membrane lining of the chest and abdomen. Symptoms of mesothelioma include shortness of breath, pain in the walls of the chest, and/or abdominal pain.

III. Respirators and Protective Clothing

A. Respirators: You are required to wear a respirator when performing tasks that result in asbestos exposure that exceeds the permissible exposure limit (PEL) of 0.1 f/cc and when performing certain designated operations. Air-purifying respirators equipped with a high-efficiency particulate air (HEPA) filter can be used where airborne asbestos fiber concentrations do not exceed 1.0 f/cc; otherwise, more protective respirators such as air-supplied, positive-pressure, full facepiece respirators must be used. Disposable respirators or dust masks are not permitted to be used for asbestos work. For effective protection, respirators must fit

your face and head snugly. Your employer is required to conduct fit tests when you are first assigned a respirator and annually thereafter. Respirators should not be loosened or removed in work situations where their use is required.

B. Protective Clothing: You are required to wear protective clothing in work areas where asbestos concentrations exceed the permissible exposure limit (PEL) of 0.1 f/cc.

IV. Disposal Procedures and Clean-up

A. Wastes that are generated by processes where asbestos is present include:

1. Empty asbestos shipping containers.

2. Process wastes such as cuttings, trimmings, or reject material.

3. Housekeeping waste from wet-sweeping or HEPA-vacuuming.

4. Asbestos fireproofing or insulating material that is removed from buildings.

5. Asbestos-containing building products removed during building renovation or demolition.

6. Contaminated disposable protective clothing.

B. Empty shipping bags can be flattened under exhaust hoods and packed into airtight containers for disposal. Empty shipping drums are difficult to clean and should be sealed.

C. Vacuum bags or disposable paper filters should not be cleaned, but should be sprayed with a fine water mist and placed into a labeled waste container.

D. Process waste and housekeeping waste should be wetted with water or a mixture of water and surfactant prior to packaging in disposable containers.

E. Asbestos-containing material that is removed from buildings must be disposed of in leak-tight 6-mil plastic bags, plastic-lined cardboard containers, or plastic-lined metal containers. These wastes, which are removed while wet, should be sealed in containers before they dry out to minimize the release of asbestos fibers during handling.

V. Access to Information

A. Each year, your employer is required to inform you of the information contained in this standard and appendices for asbestos. In addition, your employer must instruct you in the proper work practices for handling asbestos-containing materials, and the correct use of protective equipment.

B. Your employer is required to determine whether you are being exposed to asbestos. Your employer must treat exposure to thermal system insulation and sprayed-on and troweled-on surfacing material as asbestos exposure, unless results of laboratory analysis show that the material does not contain asbestos. You or your representative has the right to observe employee measurements and to record the results obtained. Your employer is required to inform you of your exposure, and, if you are exposed above the permissible exposure limit, he or she is required to inform you of the actions that are being taken to reduce your exposure to within the permissible limit.

C. Your employer is required to keep records of your exposures and medical examinations. These exposure records must be kept for at least thirty (30) years. Medical records must be kept for the period of your employment plus thirty (30) years.

D. Your employer is required to release your exposure and medical records to your physician or designated representative upon your written request.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix H to section 1529 filed 2-15-91; operative 2-15-91 pursuant to Government Code section 11346.2(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1. (Register 91, No. 45).
3. Amendment of appendix and NOTE filed 5-3-96; operative 7-3-96 (Register 96, No. 18).
4. Change without regulatory effect amending section III.A. of appendix H filed 12-23-99 pursuant to section 100, title 1, California Code of Regulations (Register 99, No. 52).

## Appendix I

### Medical Surveillance Guidelines for Asbestos Non-Mandatory

I. Route of Entry: Inhalation, Ingestion

II. Toxicology

Clinical evidence of the adverse effects associated with exposure to asbestos is present in the form of several well-conducted epidemiological studies of occupationally exposed workers, family contacts of workers, and persons living near asbestos mines. These studies have shown a definite association between exposure to asbestos and an increased incidence of lung cancer, pleural and peritoneal mesothelioma, gastrointestinal cancer, and asbestosis. The latter is a disabling fibrotic lung disease that is caused only by exposure to asbestos. Exposure to asbestos has also been associated with an increased incidence of esophageal, kidney, laryngeal, pharyngeal, and buccal cavity cancers. As with other known chronic occupational diseases, disease associated with asbestos generally appears about 20 years following the first occurrence of exposure. There are no known acute effects associated with exposure to asbestos.

Epidemiological studies indicate that the risk of lung cancer among exposed workers who smoke cigarettes is greatly increased over the risk of lung cancer among non-exposed smokers or exposed nonsmokers. These studies suggest that cessation of smoking will reduce the risk of lung cancer for a person exposed to asbestos but will not reduce it to the same level of risk as that existing for an exposed worker who has never smoked.

III. Signs and Symptoms of Exposure-Related Disease

The signs and symptoms of lung cancer or gastrointestinal cancer induced by exposure to asbestos are not unique, except that a chest X-ray of an exposed patient with lung cancer may show pleural plaques, pleural calcification, or pleural fibrosis. Symptoms characteristic of mesothelioma include shortness of breath, pain in the walls of the chest, or abdominal pain. Mesothelioma has a much longer latency period compared with lung cancer (40 years versus 15-20 years), and mesothelioma is therefore likely to be found among workers who were first exposed to asbestos at an early age. Mesothelioma is always fatal.

Asbestosis is pulmonary fibrosis caused by the accumulation of asbestos fibers in the lungs. Symptoms include shortness of breath, coughing, fatigue, and vague feelings of sickness. When the fibrosis worsens, shortness of breath occurs even at rest. The diagnosis of asbestosis is based on a history of exposure to asbestos, the presence of characteristic radiologic changes, end inspiratory crackles (rales), and other clinical features of fibrosing lung disease. Pleural plaques and thickening are observed on X-rays taken during the early stages of the disease. Asbestosis is often a progressive disease even in the absence of continued exposure, although this appears to be a highly individualized characteristic. In severe cases, death may be caused by respiratory or cardiac failure.

IV. Surveillance and Preventive Considerations

As noted above, exposure to asbestos has been linked to an increased risk of lung cancer, mesothelioma, gastrointestinal cancer, and asbestosis among occupationally exposed workers. Adequate screening tests to determine an employee's potential for developing serious chronic diseases, such as cancer, from exposure to asbestos do not presently exist. However, some tests, particularly chest X-rays and pulmonary function tests, may indicate that an employee has been overexposed to asbestos, thus increasing his or her risk of developing exposure-related chronic disease. It is important for the physician to become familiar with the operating conditions in which occupational exposure to asbestos is likely to occur. This is particularly important in evaluating medical and work histories and in conducting physical examinations. When an active employee has been identified as having been overexposed to asbestos, measures taken

by the employer to eliminate or mitigate further exposure should also lower the risk of serious long-term consequences.

The employer is required to institute a medical surveillance program for all employees who are or will be exposed to asbestos at or above the permissible exposure limit (0.1 fiber per cubic centimeter of air). All examinations and procedures must be performed by or under the supervision of a licensed physician, at a reasonable time and place, and at no cost to the employee.

Although broad latitude is given to the physician in prescribing specific tests to be included in the medical surveillance program, the following elements in the routine examination are required:

(i) Medical and work histories with special emphasis directed to symptoms of the respiratory system, cardiovascular system, and digestive tract.

(ii) Completion of one of the respiratory disease questionnaires contained in Appendix D: Part 1 for the initial examination and part 2 for periodic examinations.

(iii) A physical examination including a chest X-ray (at the discretion of the examining physician for construction work) and pulmonary function testing that includes measurement of the employee's forced vital capacity (FVC) and forced expiratory volume at one second (FEV1).

(iv) Any laboratory or other test that the examining physician deems by sound medical practice to be necessary or appropriate.

The employer is required to make the prescribed tests available at least annually to those employees covered; more often than specified if recommended by the examining physician; and upon termination of employment.

The employer is required to provide the physician with the following information: a copy of this standard and appendices; a description of the employee's work assignments as they relate to asbestos exposure; the employee's representative level of exposure to asbestos; a description of any personal protective and respiratory equipment used; and information from previous medical examinations of the affected employee that is not otherwise available to the physician. Making this information available to the physician will aid in the evaluation of the employee's health in relation to assigned duties and fitness to wear personal protective equipment, if required.

The employer is required to obtain a written opinion from the examining physician containing the results of the medical examination; the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of exposure-related disease; any recommended limitations on the employee or on the use of personal protective equipment; and a statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions related to asbestos exposure that require further explanation or treatment. This written opinion must not reveal specific findings or diagnoses unrelated to exposure to asbestos, and a copy of the opinion must be provided to the affected employee.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix I to section 1529 filed 2-15-91; operative 2-15-91 pursuant to Government Code section 11346.2(d) (Register 91, No. 19).
2. Editorial correction of HISTORY 1. (Register 91, No. 45).
3. Amendment of appendix and NOTE filed 5-3-96; operative 7-3-96 (Register 96, No. 18).

## Appendix J

### Smoking Cessation Program Information for Asbestos Non-Mandatory

The following organizations provide smoking cessation information.

1. The National Cancer Institute operates a toll free Cancer Information Service (CIS) with trained personnel to help you. Call 1-800-4-CANCER to reach the CIS office serving your area, or write: Office of Cancer Communications, National Cancer Institute, National Institutes of Health, Building 31 Room 10A24, Bethesda, Maryland 20892.

2. American Cancer Society, 3340 Peachtree Road, N.E., Atlanta, Georgia 30026, (404) 320-3333. The American Cancer Society (ACS) is a voluntary organization composed of 58 divisions and 3,100 local units. Through "The Great American Smokeout" in November, the annual Cancer Crusade in April, and numerous educational materials, ACS helps people learn about the health hazards of smoking and become successful ex-smokers.

3. American Heart Association, 7320 Greenville Avenue, Dallas, Texas 75231, (214) 750-5300. The American Heart Association (AHA) is a voluntary organization with 130,000 members (physicians, scientists, and lay persons) in 55 state and regional groups. AHA produces a variety of publications and audiovisual materials about the effects of smoking on the heart. AHA also has developed a guidebook for incorporating a weight-control component into smoking cessation programs.

4. American Lung Association, 1740 Broadway, New York, New York 10019, (212) 245-8000. A voluntary organization of 7,500 members (physicians, nurses, and lay persons), the American Lung Association (ALA) conducts numerous public information programs about the health effects of smoking. ALA has 59 state and 85 local units. The organization actively supports legislation and information campaigns for non-smokers' rights and provides help for smokers who want to quit, for example, through "Freedom From Smoking," a self-help smoking cessation program.

5. Office on Smoking and Health, U.S. Department of Health and Human Services, 5600 Fishers Lane, Park Building, Room 110, Rockville, Maryland 20857. The Office on Smoking and Health (OSH) is the Department of Health and Human Services' lead agency in smoking control. OSH has sponsored distribution of publications on smoking-related topics, such as free flyers on relapse after initial quitting, helping a friend or family member quit smoking, the health hazards of smoking, and the effects of parental smoking on teenagers. In Hawaii, on Oahu call 524-1234 (call collect from neighboring islands), Spanish-speaking staff members are available during daytime hours to callers from the following areas: California, Florida, Georgia, Illinois, New Jersey (area code 201), New York, and Texas. Consult your local telephone directory for listings of local chapters.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix J to section 1529 filed 5-3-96; operative 7-3-96 (Register 96, No. 18).

## Appendix K

### Polarized Light Microscopy of Asbestos

### Non-Mandatory

Method number: ID-191

Matrix: Bulk

Collection Procedure: Collect approximately 1 to 2 grams of each type of material and place into separate 20 mL scintillation vials. Analytical Procedure: A portion of each separate phase is analyzed by gross examination, phase-polar examination, and central stop dispersion microscopy.

Commercial manufacturers and products mentioned in this method are for descriptive use only and do not constitute endorsements by USDOL-OSHA. Similar products from other sources may be substituted.

1. Introduction

This method describes the collection and analysis of asbestos bulk materials by light microscopy techniques including phase-polar illumination and central-stop dispersion microscopy. Some terms unique to asbestos analysis are defined below:

Amphibole: A family of minerals whose crystals are formed by long, thin units which have two thin ribbons of double chain silicate with a brucite ribbon in between. The shape of each unit is similar to an "I beam". Minerals important in asbestos analysis include cummingtonite-grunerite, crocidolite, tremolite-actinolite and anthophyllite.

Asbestos: A term for naturally occurring fibrous minerals. Asbestos includes chrysotile, cummingtonite–grunerite asbestos (amosite), anthophyllite asbestos, tremolite asbestos, crocidolite, actinolite asbestos and any of these minerals which have been chemically treated or altered. The precise chemical formulation of each species varies with the location from which it was mined. Nominal compositions are listed:

Chrysotile $Mg_3Si_2O_5(OH)_4$

Crocidolite (Riebeckite asbestos) $Na_2Fe_3^{2+}Fe_2^{3+}Si_8O_{22}(OH)_2$

Cummingtonite–Grunerite asbestos (Amosite) $(Mg,Fe)_7Si_8O_{22}(OH)_2$

Tremolite–Actinolite asbestos $Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$

Anthophyllite asbestos $(Mg,Fe)_7Si_8O_{22}(OH)_2$

Asbestos Fiber: A fiber of asbestos meeting the criteria for a fiber. (See section 3.5. of this Appendix)

Aspect Ratio: The ratio of the length of a fiber to its diameter usually defined as "length : width", e.g. 3:1.

Brucite: A sheet mineral with the composition Mg(OH)(2).

Central Stop Dispersion Staining (microscope): This is a dark field microscope technique that images particles using only light refracted by the particle, excluding light that travels through the particle unrefracted. This is usually accomplished with a McCrone objective or other arrangement which places a circular stop with apparent aperture equal to the objective aperture in the back focal plane of the microscope.

Cleavage Fragments: Mineral particles formed by the comminution of minerals, especially those characterized by relatively parallel sides and moderate aspect ratio.

Differential Counting: The term applied to the practice of excluding certain kinds of fibers from a phase contrast asbestos count because they are not asbestos.

Fiber: A particle longer than or equal to 5 μm with a length to width ratio greater than or equal to 3:1. This may include cleavage fragments. (see section 3.5 of this appendix).

Phase Contrast: Contrast obtained in the microscope by causing light scattered by small particles to destructively interfere with unscattered light, thereby enhancing the visibility of very small particles and particles with very low intrinsic contrast.

Phase Contrast Microscope: A microscope configured with a phase mask pair to create phase contrast. The technique which uses this is called Phase Contrast Microscopy (PCM).

Phase–Polar Analysis: This is the use of polarized light in a phase contrast microscope. It is used to see the same size fibers that are visible in air filter analysis. Although fibers finer than 1 μm are visible, analysis of these is inferred from analysis of larger bundles that are usually present.

Phase–Polar Microscope: The phase–polar microscope is a phase contrast microscope which has an analyzer, a polarizer, a first order red plate and a rotating phase condenser all in place so that the polarized light image is enhanced by phase contrast.

Sealing Encapsulant: This is a product which can be applied, preferably by spraying, onto an asbestos surface which will seal the surface so that fibers cannot be released.

Serpentine: A mineral family consisting of minerals with the general composition Mg(3)(Si(2)O(5)(OH)(4) having the magnesium in brucite layer over a silicate layer. Minerals important in asbestos analysis included in this family are chrysotile, lizardite, antigorite.

1.1. History

Light microscopy has been used for well over 100 years for the determination of mineral species. This analysis is carried out using specialized polarizing microscopes as well as bright field microscopes. The identification of minerals is an on–going process with many new minerals described each year. The first recorded use of asbestos was in Finland about 2500 B.C. where the material was used in the mud wattle for the wooden huts the people lived in as well as strengthening for pottery. Adverse health aspects of the mineral were noted nearly 2000 years ago when Pliny the Younger wrote about the poor health of slaves in the asbestos mines. Although known to be injurious for centuries, the first modern references to its toxicity were by the British Labor Inspectorate when it banned asbestos dust from the workplace in 1898. Asbestosis cases were described in the literature after the turn of the century. Cancer was first suspected in the mid 1930's and a causal link to mesothelioma was made in 1965. Because of the public concern for worker and public safety with the use of this material, several different types of analysis were applied to the determination of asbestos content. Light microscopy requires a great deal of experience and craft. Attempts were made to apply less subjective methods to the analysis. X–ray diffraction was partially successful in determining the mineral types but was unable to separate out the fibrous portions from the non–fibrous portions. Also, the minimum detection limit for asbestos analysis by X–ray diffraction (XRD) is about 1%. Differential Thermal Analysis (DTA) was no more successful. These provide useful corroborating information when the presence of asbestos has been shown by microscopy; however, neither can determine the difference between fibrous and non–fibrous minerals when both habits are present. The same is true of Infrared Absorption (IR).

When electron microscopy was applied to asbestos analysis, hundreds of fibers were discovered present too small to be visible in any light microscope. There are two different types of electron microscope used for asbestos analysis: Scanning Electron Microscope (SEM) and Transmission Electron Microscope (TEM). Scanning Electron Microscopy is useful in identifying minerals. The SEM can provide two of the three pieces of information required to identify fibers by electron microscopy: morphology and chemistry. The third is structure as determined by Selected Area Electron Diffraction — SAED which is performed in the TEM. Although the resolution of the SEM is sufficient for very fine fibers to be seen, accuracy of chemical analysis that can be performed on the fibers varies with fiber diameter in fibers of less than 0.2 μm diameter. The TEM is a powerful tool to identify fibers too small to be resolved by light microscopy and should be used in conjunction with this method when necessary. The TEM can provide all three pieces of information required for fiber identification. Most fibers thicker than 1 μm can adequately be defined in the light microscope. The light microscope remains as the best instrument for the determination of mineral type. This is because the minerals under investigation were first described analytically with the light microscope. It is inexpensive and gives positive identification for most samples analyzed. Further, when optical techniques are inadequate, there is ample indication that alternative techniques should be used for complete identification of the sample.

1.2. Principle

Minerals consist of atoms that may be arranged in random order or in a regular arrangement. Amorphous materials have atoms in random order while crystalline materials have long range order. Many materials are transparent to light, at least for small particles or for thin sections. The properties of these materials can be investigated by the effect that the material has on light passing through it. The six asbestos minerals are all crystalline with particular properties that have been identified and cataloged. These six minerals are anisotropic. They have a regular array of atoms, but the arrangement is not the same in all directions. Each major direction of the crystal presents a different regularity. Light photons travelling in each of these main directions will encounter different electrical neighborhoods, affecting the path and time of travel. The techniques outlined in this method use the fact that light traveling through fibers or crystals in different directions will behave differently, but predictably. The behavior of the light as it travels through a crystal can be measured and compared with known or determined values to identify the mineral species. Usually, Polarized Light Microscopy (PLM is performed with strain–free objectives on a bright–field microscope platform. This would limit the resolution of the microscope to about 0.4 μm. Because OSHA requires the counting and identification of fibers visible in phase contrast, the phase contrast platform is used to visualize the fibers with the polarizing elements added into the light path. Polarized light methods cannot identify fibers finer than about 1 μm in diameter even though they are vis-

ible. The finest fibers are usually identified by inference from the presence of larger, identifiable fiber bundles. When fibers are present, but not identifiable by light microscopy, use either SEM or TEM to determine the fiber identity.

1.3. Advantages and Disadvantages

The advantages of light microcopy are:

(a) Basic identification of the materials was first performed by light microscopy and gross analysis. This provides a large base of published information against which to check analysis and analytical technique.

(b) The analysis is specific to fibers. The minerals present can exist in asbestiform, fibrous, prismatic, or massive varieties all at the same time. Therefore, bulk methods of analysis such as X–ray diffraction, IR analysis, DTA, etc. are inappropriate where the material is not known to be fibrous.

(c) The analysis is quick, requires little preparation time, and can be performed on–site if a suitably equipped microscope is available.

The disadvantages are:

(a) Even using phase–polar illumination, not all the fibers present may be seen. This is a problem for very low asbestos concentrations where agglomerations or large bundles of fibers may not be present to allow identification by inference.

(b) The method requires a great degree of sophistication on the part of the microscopist. An analyst is only as useful as his mental catalog of images. Therefore, a microscopist's accuracy is enhanced by experience. The mineralogical training of the analyst is very important. It is the basis on which subjective decisions are made.

(c) The method uses only a tiny amount of material for analysis. This may lead to sampling bias and false results (high or low). This is especially true if the sample is severely inhomogeneous.

(d) Fibers may be bound in a matrix and not distinguishable as fibers so identification cannot be made.

1.4. Method Performance

1.4.1. This method can be used for determination of asbestos content from 0 to 100% asbestos. The detection limit has not been adequately determined, although for selected samples, the limit is very low, depending on the number of particles examined. For mostly homogeneous, finely divided samples, with no difficult fibrous interferences, the detection limit is below 1%. For inhomogeneous samples (most samples), the detection limit remains undefined. NIST has conducted proficiency testing of laboratories on a national scale. Although each round is reported statistically with an average, control limits, etc., the results indicate a difficulty in establishing precision especially in the low concentration range. It is suspected that there is significant bias in the low range especially near 1%. EPA tried to remedy this by requiring a mandatory point counting scheme for samples less than 10%. The point counting procedure is tedious, and may introduce significant biases of its own. It has not been incorporated into this method.

1.4.2. The precision and accuracy of the quantitation tests performed in this method are unknown. Concentrations are easier to determine in commercial products where asbestos was deliberately added because the amount is usually more than a few percent. An analyst's results can be "calibrated" against the known amounts added by the manufacturer. For geological samples, the degree of homogeneity affects the precision.

1.4.3. The performance of the method is analyst dependent. The analyst must choose carefully and not necessarily randomly the portions for analysis to assure that detection of asbestos occurs when it is present. For this reason, the analyst must have adequate training in sample preparation, and experience in the location and identification of asbestos in samples. This is usually accomplished through substantial on–the–job training as well as formal education in mineralogy and microscopy.

1.5. Interferences

Any material which is long, thin, and small enough to be viewed under the microscope can be considered an interference for asbestos. There are literally hundreds of interferences in workplaces. The techniques described in this method are normally sufficient to eliminate the interferences. An analyst's success in eliminating the interferences depends on proper training.

Asbestos minerals belong to two mineral families: the serpentines and the amphiboles. In the serpentine family, the only common fibrous mineral is chrysotile. Occasionally, the mineral antigorite occurs in a fibril habit with morphology similar to the amphiboles. The amphibole minerals consist of a score of different minerals of which only five are regulated by federal standard: amosite, crocidolite, anthophyllite asbestos, tremolite asbestos and actinolite asbestos. These are the only amphibole minerals that have been commercially exploited for their fibrous properties; however, the rest can and do occur occasionally in asbestiform habit.

In addition to the related mineral interferences, other minerals common in building material may present a problem for some microscopists: gypsum, anhydrite, brucite, quartz fibers, talc fibers or ribbons, wollastonite, perlite, attapulgite, etc. Other fibrous materials commonly present in workplaces are: fiberglass, mineral wool, ceramic wool, refractory ceramic fibers, kevlar, nomex, synthetic fibers, graphite or carbon fibers, cellulose (paper or wood) fibers, metal fibers, etc.

Matrix embedding material can sometimes be a negative interference. The analyst may not be able to easily extract the fibers from the matrix in order to use the method. Where possible, remove the matrix before the analysis, taking careful note of the loss of weight. Some common matrix materials are: vinyl, rubber, tar, paint, plant fiber, cement, and epoxy. A further negative interference is that the asbestos fibers themselves may be either too small to be seen in Phase contrast Microscopy (PCM) or of a very low fibrous quality, having the appearance of plant fibers. The analyst's ability to deal with these materials increases with experience.

1.6. Uses and Occupational Exposure

Asbestos is ubiquitous in the environment. More than 40% of the land area of the United States is composed of minerals which may contain asbestos. Fortunately, the actual formation of great amounts of asbestos is relatively rare. Nonetheless, there are locations in which environmental exposure can be severe such as in the Serpentine Hills of California.

There are thousands of uses for asbestos in industry and the home. Asbestos abatement workers are the most current segment of the population to have occupational exposure to great amounts of asbestos. If the material is undisturbed, there is no exposure. Exposure occurs when the asbestos–containing material is abraded or otherwise disturbed during maintenance operations or some other activity. Approximately 95% of the asbestos in place in the United States is chrysotile.

Amosite and crocidolite make up nearly all the difference. Tremolite and anthophyllite make up a very small percentage. Tremolite is found in extremely small amounts in certain chrysotile deposits. Actinolite exposure is probably greatest from environmental sources, but has been identified in vermiculite containing, sprayed–on insulating materials which may have been certified as asbestos–free.

1.7. Physical and Chemical Properties

The nominal chemical compositions for the asbestos minerals were given in Section 1. Compared to cleavage fragments of the same minerals, asbestiform fibers possess a high tensile strength along the fiber axis. They are chemically inert, noncombustible, and heat resistant. Except for chrysotile, they are insoluble in Hydrochloric acid (HCl). Chrysotile is slightly soluble in HCl. Asbestos has high electrical resistance and good sound absorbing characteristics. It can be woven into cables, fabrics or other textiles, or matted into papers, felts, and mats.

1.8. Toxicology (This Section is for Information Only and Should Not Be Taken as OSHA Policy)

Possible physiologic results of respiratory exposure to asbestos are mesothelioma of the pleura or peritoneum, interstitial fibrosis, asbestosis, pneumoconiosis, or respiratory cancer. The possible consequences of asbestos exposure are detailed in the NIOSH Criteria Document or in the OSHA Asbestos Standards 29 CFR 1910.1001, 29 CFR 1926.1101, and 29 CFR 1915.1001.

2. Sampling Procedure

2.1. Equipment for sampling

(a) Tube or cork borer sampling device
(b) Knife
(c) 20 mL scintillation vial or similar vial
(d) Sealing encapsulant

2.2. Safety Precautions

Asbestos is a known carcinogen. Take care when sampling. While in an asbestos–containing atmosphere, a properly selected and fit–tested respirator should be worn. Take samples in a manner to cause the least amount of dust. Follow these general guidelines:

(a) Do not make unnecessary dust.
(b) Take only a small amount (1 to 2 g).
(c) Tightly close the sample container.
(d) Use encapsulant to seal the spot where the sample was taken, if necessary.

2.3. Sampling Procedure

Samples of any suspect material should be taken from an inconspicuous place. Where the material is to remain, seal the sampling wound with an encapsulant to eliminate the potential for exposure from the sample site. Microscopy requires only a few milligrams of material. The amount that will fill a 20 mL scintillation vial is more than adequate. Be sure to collect samples from all layers and phases of material. If possible, make separate samples of each different phase of the material. This will aid in determining the actual hazard. DO NOT USE ENVELOPES, PLASTIC OR PAPER BAGS OF ANY KIND TO COLLECT SAMPLES. The use of plastic bags presents a contamination hazard to laboratory personnel and to other samples. When these containers are opened, a bellows effect blows fibers out of the container onto everything, including the person opening the container.

If a cork–borer type sampler is available, push the tube through the material all the way, so that all layers of material are sampled. Some samplers are intended to be disposable. These should be capped and sent to the laboratory. If a non–disposable cork borer is used, empty the contents into a scintillation vial and send to the laboratory. Vigorously and completely clean the cork borer between samples.

2.4. Shipment

Samples packed in glass vials must not touch or they might break in shipment.

(a) Seal the samples with a sample seal over the end to guard against tampering and to identify the sample.

(b) Package the bulk samples in separate packages from the air samples. They may cross–contaminate each other and will invalidate the results of the air samples.

(c) Include identifying paperwork with the samples, but not in contact with the suspected asbestos.

(d) To maintain sample accountability, ship the samples by certified mail, overnight express, or hand carry them to the laboratory.

3. Analysis

The analysis of asbestos samples can be divided into two major parts: sample preparation and microscopy. Because of the different asbestos uses that may be encountered by the analyst, each sample may need different preparation steps. The choices are outlined below. There are several different tests that are performed to identify the asbestos species and determine the percentage. They will be explained below.

3.1. Safety

(a) Do not create unnecessary dust. Handle the samples in HEPA– filter equipped hoods. If samples are received in bags, envelopes or other inappropriate container, open them only in a hood having a face velocity at or greater than 100 fpm. Transfer a small amount to a scintillation vial and only handle the smaller amount.

(b) Open samples in a hood, never in the open lab area.

(c) Index of refraction oils can be toxic. Take care not to get this material on the skin. Wash immediately with soap and water if this happens.

(d) Samples that have been heated in the muffle furnace or the drying oven may be hot. Handle them with tongs until they are cool enough to handle.

(e) Some of the solvents used, such as THF (tetrahydrofuran), are toxic and should only be handled in an appropriate fume hood and according to instructions given in the Material Safety Data Sheet (MSDS).

3.2. Equipment

(a) Phase contrast microscope with 10x, 16x and 40x objectives, 10x wide–field eyepieces, G–22 Walton–Beckett graticule, Whipple disk, polarizer, analyzer and first order red or gypsum plate, 100 Watt illuminator, rotating position condenser with oversize phase rings, central stop dispersion objective, Kohler illumination and a rotating mechanical stage. (see Figure 1. of this appendix)

(b) Stereo microscope with reflected light illumination, transmitted light illumination, polarizer, analyzer and first order red or gypsum plate, and rotating stage.

(c) Negative pressure hood for the stereo microscope
(d) Muffle furnace capable of 600 deg.C
(e) Drying oven capable of 50 — 150 deg.C
(f) Aluminum specimen pans
(g) Tongs for handling samples in the furnace
(h) High dispersion index of refraction oils (Special for dispersion staining.)

n = 1.550
n = 1.585
n = 1.590
n = 1.605
n = 1.620
n = 1.670
n = 1.680
n = 1.690

(i) A set of index of refraction oils from about n=1.350 to n=2.000 in n=0.005 increments. (Standard for Becke line analysis.)

(j) Glass slides with painted or frosted ends 1x3 inches 1mm thick, precleaned.

(k) Cover Slips 22x22 mm, #1 1/2
(l) Paper clips or dissection needles
(m) Hand grinder
(n) Scalpel with both #10 and #11 blades
(o) 0.1 molar HCl
(p) Decalcifying solution (Baxter Scientific Products)
Ethylenediaminetetraacetic Acid, Tetrasodium 0.7 g/l
Sodium Potassium Tartrate 8.0 mg/liter
Hydrochloric Acid 99.2 g/liter
Sodium Tartrate 0.14 g/liter
(q) Tetrahydrofuran (THF)
(r) Hotplate capable of 60 deg.C
(s) Balance
(t) Hacksaw blade
(u) Ruby mortar and pestle

3.3. Sample Pre–Preparation

Sample preparation begins with pre–preparation which may include chemical reduction of the matrix, heating the sample to dryness or heating in the muffle furnace. The end result is a sample which has been reduced to a powder that is sufficiently fine to fit under the cover slip. Analyze different phases of samples separately, e.g., tile and the tile mastic should be analyzed separately as the mastic may contain asbestos while the tile may not.

(a) Wet Samples

Samples with a high water content will not give the proper dispersion colors and must be dried prior to sample mounting. Remove the lid of the scintillation vial, place the bottle in the drying oven and heat at 100 deg.C to dryness (usually about 2 h). Samples which are not submitted to the lab in glass must be removed and placed in glass vials or aluminum weighing pans before placing them in the drying oven.

(b) Samples With Organic Interference — Muffle Furnace

These may include samples with tar as a matrix, vinyl asbestos tile, or any other organic that can be reduced by heating. Remove the sample

from the vial and weigh in a balance to determine the weight of the submitted portion. Place the sample in a muffle furnace at 500 deg.C for 1 to 2 h or until all obvious organic material has been removed. Retrieve, cool and weigh again to determine the weight loss on ignition. This is necessary to determine the asbestos content of the submitted sample, because the analyst will be looking at a reduced sample.

NOTE: Heating above 600 deg.C will cause the sample to undergo a structural change which, given sufficient time, will convert the chrysotile to forsterite. Heating even at lower temperatures for 1 to 2 h may have a measurable effect on the optical properties of the minerals. If the analyst is unsure of what to expect, a sample of standard asbestos should be heated to the same temperature for the same length of time so that it can be examined for the proper interpretation.

(c) Samples With Organic Interference — THF

Vinyl asbestos tile is the most common material treated with this solvent, although, substances containing tar will sometimes yield to this treatment. Select a portion of the material and then grind it up if possible. Weigh the sample and place it in a test tube. Add sufficient THF to dissolve the organic matrix. This is usually about 4 to 5 mL. Remember, THF is highly flammable. Filter the remaining material through a tared silver membrane, dry and weigh to determine how much is left after the solvent extraction. Further process the sample to remove carbonate or mount directly.

(d) Samples With Carbonate Interference

Carbonate material is often found on fibers and sometimes must be removed in order to perform dispersion microscopy. Weigh out a portion of the material and place it in a test tube. Add a sufficient amount of 0.1 M HCl or decalcifying solution in the tube to react all the carbonate as evidenced by gas formation; i.e., when the gas bubbles stop, add a little more solution. If no more gas forms, the reaction is complete. Filter the material out through a tared silver membrane, dry and weigh to determine the weight lost.

3.4. Sample Preparation

Samples must be prepared so that accurate determination can be made of the asbestos type and amount present. The following steps are carried out in the low-flow hood (a low-flow hood has less than 50 fpm flow):

(1) If the sample has large lumps, is hard, or cannot be made to lie under a cover slip, the grain size must be reduced. Place a small amount between two slides and grind the material between them or grind a small amount in a clean mortar and pestle. The choice of whether to use an alumina, ruby, or diamond mortar depends on the hardness of the material. Impact damage can alter the asbestos mineral if too much mechanical shock occurs. (Freezer mills can completely destroy the observable crystallinity of asbestos and should not be used). For some samples, a portion of material can be shaved off with a scalpel, ground off with a hand grinder or hack saw blade.

The preparation tools should either be disposable or cleaned thoroughly. Use vigorous scrubbing to loosen the fibers during the washing. Rinse the implements with copious amounts of water and air-dry in a dust-free environment.

(2) If the sample is powder or has been reduced as in (1) above, it is ready to mount. Place a glass slide on a piece of optical tissue and write the identification on the painted or frosted end. Place two drops of index of refraction medium n=1.550 on the slide. (The medium n=1.550 is chosen because it is the matching index for chrysotile. Dip the end of a clean paper-clip or dissecting needle into the droplet of refraction medium on the slide to moisten it. Then dip the probe into the powder sample. Transfer what sticks on the probe to the slide. The material on the end of the probe should have a diameter of about 3 mm for a good mount. If the material is very fine, less sample may be appropriate. For non-powder samples such as fiber mats, forceps should be used to transfer a small amount of material to the slide. Stir the material in the medium on the slide, spreading it out and making the preparation as uniform as possible. Place a cover-slip on the preparation by gently lowering onto the slide and allowing it to fall "trapdoor" fashion on the preparation to push out any bubbles. Press gently on the cover slip to even out the distribution of particulate on the slide. If there is insufficient mounting oil on the slide, one or two drops may be placed near the edge of the coverslip on the slide. Capillary action will draw the necessary amount of liquid into the preparation. Remove excess oil with the point of a laboratory wiper.

Treat at least two different areas of each phase in this fashion. Choose representative areas of the sample. It my be useful to select particular areas or fibers for analysis. This is useful to identify asbestos in severely inhomogeneous samples.

When it is determined that amphiboles may be present, repeat the above process using the appropriate high-dispersion oils until an identification is made or all six asbestos minerals have been ruled out. Note that percent determination must be done in the index medium 1.550 because amphiboles tend to disappear in their matching mediums.

3.5. Analytical procedure

NOTE: This method presumes some knowledge of mineralogy and optical petrography.

The analysis consists of three parts: The determination of whether there is asbestos present, what type is present and the determination of how much is present. The general flow of the analysis is:

(1) Gross examination.

(2) Examination under polarized light on the stereo microscope.

(3) Examination by phase-polar illumination on the compound phase microscope.

(4) Determination of species by dispersion stain. Examination by Becke line analysis may also be used; however, this is usually more cumbersome for asbestos determination.

(5) Difficult samples may need to be analyzed by SEM or TEM, or the results from those techniques combined with light microscopy for a definitive identification.

Identification of a particle as asbestos requires that it be asbestiform. Description of particles should follow the suggestion of Campbell. (Figure 1 of this appendix)

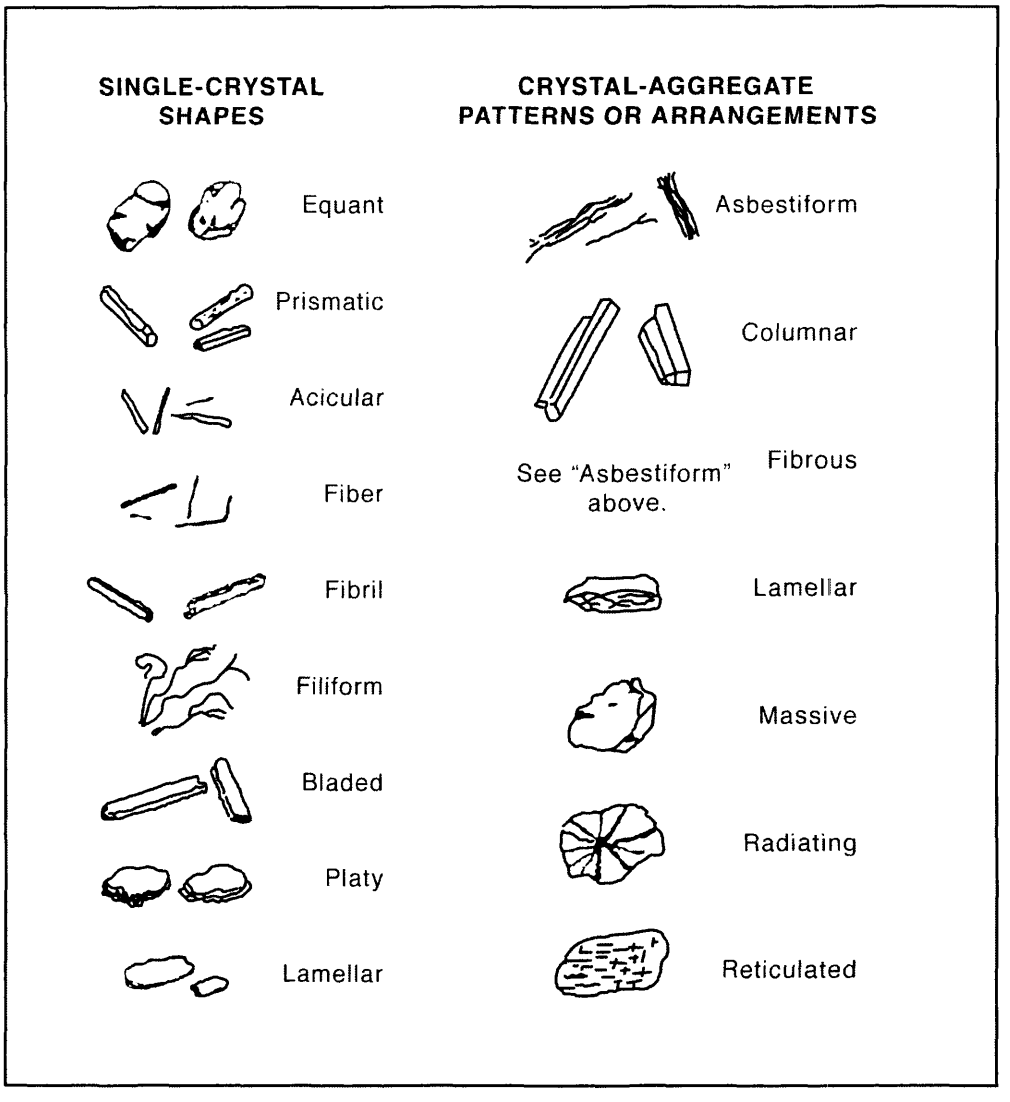



Figure 1. Particle definitions showing mineral growth habits.
From the U.S. Bureau of Mines

For the purpose of regulation, the mineral must be one of the six minerals covered and must be in the asbestos growth habit. Large specimen samples of asbestos generally have the gross appearance of wood. Fibers are easily parted from it. Asbestos fibers are very long compared with their widths. The fibers have a very high tensile strength as demonstrated by bending without breaking. Asbestos fibers exist in bundles that are easily parted, show longitudinal fine structure and may be tufted at the ends showing "bundle of sticks" morphology. In the microscope some of these properties may not be observable. Amphiboles do not always show striations along their length even when they are asbestos. Neither will they always show tufting. They generally do not show a curved nature except for very long fibers. Asbestos and asbestiform minerals are usually characterized in groups by extremely high aspect ratios (greater than 100:1). While aspect ratio analysis is useful for characterizing populations of fibers, it cannot be used to identify individual fibers of intermediate to short aspect ratio. Observation of many fibers is often necessary to determine whether a sample consists of "cleavage fragments" or of asbestos fibers.

Most cleavage fragments of the asbestos minerals are easily distinguishable from true asbestos fibers. This is because true cleavage fragments usually have larger diameters than 1 μm. Internal structure of particles larger than this usually shows them to have no internal fibrillar structure. In addition, cleavage fragments of the monoclinic amphiboles show inclined extinction under crossed polars with no compensator. Asbestos fibers usually show extinction at zero degrees or ambiguous extinction if any at all. Morphologically, the larger cleavage fragments are obvious by their blunt or stepped ends showing prismatic habit. Also, they tend to be circular rather than filiform.

Where the particles are less than 1 μm in diameter and have an aspect ratio greater than or equal to 3:1, it is recommended that the sample be analyzed by SEM or TEM if there is any question whether the fibers are cleavage fragments or asbestiform particles. Care must be taken when analyzing by electron microscopy because the interferences are different from those in light microscopy and may structurally be very similar to asbestos. The classic interference is between anthophyllite and biopyribole or intermediate fiber. Use the same morphological clues for electron microscopy as are used for light microscopy, e.g. fibril splitting, internal longitudinal striation, fraying, curvature, etc.

(1) Gross examination:

Examine the sample, preferably in the glass vial. Determine the presence of any obvious fibrous component. Estimate a percentage based on previous experience and current observation. Determine whether any prepreparation is necessary. Determine the number of phases present. This step may be carried out or augmented by observation at 6 to 40 x under a stereo microscope.

(2) After performing any necessary pre–preparation, prepare slides of each phase as described above. Two preparations of the same phase in the same index medium can be made side–by–side on the same glass for convenience. Examine with the polarizing stereo microscope. Estimate the percentage of asbestos based on the amount of birefringent fiber present.

(3) Examine the slides on the phase–polar microscopes at magnifications of 160 and 400x. Note the morphology of the fibers. Long, thin, very straight fibers with little curvature are indicative of fibers from the amphibole family. Curved, wavy fibers are usually indicative of chrysotile. Estimate the percentage of asbestos on the phase–polar microscope under conditions of crossed polars and a gypsum plate. Fibers smaller than 1.0 μm in thickness must be identified by inference to the presence of larger, identifiable fibers and morphology. If no larger fibers are visible, electron microscopy should be performed. At this point, only a tentative identification can be made. Full identification must be made with dispersion microscopy. Details of the tests are included in the appendices.

(4) Once fibers have been determined to be present, they must be identified. Adjust the microscope for dispersion mode and observe the fibers. The microscope has a rotating stage, one polarizing element, and a system for generating dark–field dispersion microscopy (see Section 4.6. of this appendix). Align a fiber with its length parallel to the polarizer and note the color of the Becke lines. Rotate the stage to bring the fiber length perpendicular to the polarizer and note the color. Repeat this process for every fiber or fiber bundle examined. The colors must be consistent with the colors generated by standard asbestos reference materials for a positive identification. In n=1.550, amphiboles will generally show a yellow to straw–yellow color indicating that the fiber indices of refraction are higher than the liquid. If long, thin fibers are noted and the colors are yellow, prepare further slides as above in the suggested matching liquids listed below:

| *Type of asbestos* | *Index of refraction* |
|---|---|
| Chrysotile | n = 1.550. |
| Amosite | n = 1.670 or 1.680. |
| Crocidolite | n = 1.690. |
| Anthophyllite | n = 1.605 and 1.620. |
| Tremolite | n = 1.605 and 1.620. |
| Actinolite | n = 1.620. |

Where more than one liquid is suggested, the first is preferred; however, in some cases this liquid will not give good dispersion color. Take care to avoid interferences in the other liquid; e.g., wollastonite in n=1.620 will give the same colors as tremolite. In n=1.605 wollastonite will appear yellow in all directions. Wollastonite may be determined under crossed polars as it will change from blue to yellow as it is rotated along its fiber axis by tapping on the cover slip. Asbestos minerals will not change in this way.

Determination of the angle of extinction may, when present, aid in the determination of anthophyllite from tremolite. True asbestos fibers usually have 0 deg. extinction or ambiguous extinction, while cleavage fragments have more definite extinction.

Continue analysis until both preparations have been examined and all present species of asbestos are identified. If there are no fibers present, or there is less than 0.1% present, end the analysis with the minimum number of slides (2).

(5) Some fibers have a coating on them which makes dispersion microscopy very difficult or impossible. Becke line analysis or electron microscopy may be performed in those cases. Determine the percentage by light microscopy. TEM analysis tends to overestimate the actual percentage present.

(6) Percentage determination is an estimate of occluded area, tempered by gross observation. Gross observation information is used to make sure that the high magnification microscopy does not greatly over– or under–estimate the amount of fiber present. This part of the analysis requires a great deal of experience. Satisfactory models for asbestos content analysis have not yet been developed, although some models based on metallurgical grain–size determination have found some utility. Estimation is more easily handled in situations where the grain sizes visible at about 160x are about the same and the sample is relatively homogeneous.

View all of the area under the cover slip to make the percentage determination. View the fields while moving the stage, paying attention to the clumps of material. These are not usually the best areas to perform dispersion microscopy because of the interference from other materials. But, they are the areas most likely to represent the accurate percentage in the sample. Small amounts of asbestos require slower scanning and more frequent analysis of individual fields.

Report the area occluded by asbestos as the concentration. This estimate does not generally take into consideration the difference in density of the different species present in the sample. For most samples this is adequate. Simulation studies with similar materials must be carried out to apply microvisual estimation for that purpose and is beyond the scope of this procedure.

(7) Where successive concentrations have been made by chemical or physical means, the amount reported is the percentage of the material in the "as submitted" or original state. The percentage determined by microscopy is multiplied by the fractions remaining after pre–preparation steps to give the percentage in the original sample. For example:

Step 1. 60% remains after heating at 550 deg.C for 1 h.

Step 2. 30% of the residue of step 1 remains after dissolution of carbonate in 0.1 m HCl.

Step 3. Microvisual estimation determines that 5% of the sample is chrysotile asbestos.

The reported result is:

R = (Microvisual result in percent) x (Fraction remaining after step 2) x (Fraction remaining of original sample after step 1)

R = (5) x (.30) x (.60) = 0.9%

(8) Report the percent and type of asbestos present. For samples where asbestos was identified, but is less than 1.0%, report "Asbestos present, less than 1.0%." There must have been at least two observed fibers or fiber bundles in the two preparations to be reported as present. For samples where asbestos was not seen, report as "None Detected."

Auxiliary Information

Because of the subjective nature of asbestos analysis, certain concepts and procedures need to be discussed in more depth. This information will help the analyst understand why some of the procedures are carried out the way they are.

4. 1. Light

Light is electromagnetic energy. It travels from its source in packets called quanta. It is instructive to consider light as a plane wave. The light has a direction of travel. Perpendicular to this and mutually perpendicular to each other, are two vector components. One is the magnetic vector and the other is the electric vector. We shall only be concerned with the electric vector. In this description, the interaction of the vector and the mineral will describe all the observable phenomena. From a light source such a microscope illuminator, light travels in all different direction from the filament.

In any given direction away from the filament, the electric vector is perpendicular to the direction of travel of a light ray. While perpendicular, its orientation is random about the travel axis. If the electric vectors from all the light rays were lined up by passing the light through a filter that would only let light rays with electric vectors oriented in one direction pass, the light would then be POLARIZED.

Polarized light interacts with matter in the direction of the electric vector. This is the polarization direction. Using this property it is possible to use polarized light to probe different materials and identify them by how they interact with light.

The speed of light in a vacuum is a constant at about 2.99 x 10(8) m/s. When light travels in different materials such as air, water, minerals or oil, it does not travel at this speed. It travels slower. This slowing is a function of both the material through which the light is traveling and the

wavelength or frequency of the light. In general, the more dense the material, the slower the light travels. Also, generally, the higher the frequency, the slower the light will travel. The ratio of the speed of light in a vacuum to that in a material is called the index of refraction (n). It is usually measured at 589 nm (the sodium D line). If white light (light containing all the visible wavelengths) travels through a material, rays of longer wavelengths will travel faster than those of shorter wavelengths, this separation is called dispersion. Dispersion is used as an identifier of materials as described in Section 4.6.

4.2. Material Properties

Materials are either amorphous or crystalline. The difference between these two descriptions depends on the positions of the atoms in them. The atoms in amorphous materials are randomly arranged with no long range order. An example of an amorphous material is glass. The atoms in crystalline materials, on the other hand, are in regular arrays and have long range order. Most of the atoms can be found in highly predictable locations. Examples of crystalline material are salt, gold, and the asbestos minerals.

It is beyond the scope of this method to describe the different types of crystalline materials that can be found, or the full description of the classes into which they can fall. However, some general crystallography is provided below to give a foundation to the procedures described.

With the exception of anthophyllite, all the asbestos minerals belong to the monoclinic crystal type. The unit cell is the basic repeating unit of the crystal and for monoclinic crystals can be described as having three unequal sides, two 90 deg. angles and one angle not equal to 90 deg.. The orthorhombic group, of which anthophyllite is a member has three unequal sides and three 90 deg. angles. The unequal sides are a consequence of the complexity of fitting the different atoms into the unit cell. Although the atoms are in a regular array, that array is not symmetrical in all directions. There is long range order in the three major directions of the crystal. However, the order is different in each of the three directions. This has the effect that the index of refraction is different in each of the three directions. Using polarized light, we can investigate the index of refraction in each of the directions and identify the mineral or material under investigation. The indices alpha, beta, and gamma are used to identify the lowest, middle, and highest index of refraction respectively. The x direction, associated with alpha is called the fast axis. Conversely, the z direction is associated with gamma and is the slow direction. Crocidolite has alpha along the fiber length making it "length–fast". The remainder of the asbestos minerals have the gamma axis along the fiber length. They are called "length–slow". This orientation to fiber length is used to aid in the identification of asbestos.

4.3. Polarized Light Technique

Polarized light microscopy as described in this section uses the phase–polar microscope described in Section 3.2. A phase contrast microscope is fitted with two polarizing elements, one below and one above the sample. The polarizers have their polarization directions at right angles to each other.

Depending on the tests performed, there may be a compensator between these two polarizing elements. A compensator is a piece of mineral with known properties that "compensates" for some deficiency in the optical train. Light emerging from a polarizing element has its electric vector pointing in the polarization direction of the element. The light will not be subsequently transmitted through a second element set at a right angle to the first element. Unless the light is altered as it passes from one element to the other, there is no transmission of light.

4.4. Angle of Extinction

Crystals which have different crystal regularity in two or three main directions are said to be anisotropic. They have a different index of refraction in each of the main directions. When such a crystal is inserted between the crossed polars, the field of view is no longer dark but shows the crystal in color. The color depends on the properties of the crystal. The light acts as if it travels through the crystal along the optical axes. If a crystal optical axis were lined up along one of the polarizing directions (either the polarizer or the analyzer) the light would appear to travel only in that direction, and it would blink out or go dark. The difference in degrees between the fiber direction and the angle at which it blinks out is called the angle of extinction. When this angle can be measured, it is useful in identifying the mineral. The procedure for measuring the angle of extinction is to first identify the polarization direction in the microscope. A commercial alignment slide can be used to establish the polarization directions or use anthophyllite or another suitable mineral. This mineral has a zero degree angle of extinction and will go dark to extinction as it aligns with the polarization directions. When a fiber of anthophyllite has gone to extinction, align the eyepiece reticle or graticule with the fiber so that there is a visual cue as to the direction of polarization in the field of view. Tape or otherwise secure the eyepiece in this position so it will not shift.

After the polarization direction has been identified in the field of view, move the particle of interest to the center of the field of view and align it with the polarization direction. For fibers, align the fiber along this direction. Note the angular reading of the rotating stage. Looking at the particle, rotate the stage until the fiber goes dark or "blinks out". Again note the reading of the stage. The difference in the first reading and the second is an angle of extinction.

The angle measured may vary as the orientation of the fiber changes about its long axis. Tables of mineralogical data usually report the maximum angle of extinction. Asbestos forming minerals, when they exhibit an angle of extinction, usually do show an angle of extinction close to the reported maximum, or as appropriate depending on the substitution chemistry.

4.5. Crossed Polars with Compensator

When the optical axes of a crystal are not lined up along one of the polarizing directions (either the polarizer or the analyzer) part of the light travels along one axis and part travels along the other visible axis. This is characteristic of birefringent materials.

The color depends on the difference of the two visible indices of refraction and the thickness of the crystal. The maximum difference available is the difference between the alpha and the gamma axes. This maximum difference is usually tabulated as the birefringence of the crystal.

For this test, align the fiber at 45 deg. to the polarization directions in order to maximize the contribution to each of the optical axes. The colors seen are called retardation colors. They arise from the recombination of light which has traveled through the two separate directions of the crystal. One of the rays is retarded behind the other since the light in that direction travels slower. On recombination, some of the colors which make up white light are enhanced by constructive interference and some are suppressed by destructive interference. The result is a color dependent on the difference between the indices and the thickness of the crystal. The proper colors, thicknesses, and retardations are shown on a Michel–Levy chart. The three items, retardation, thickness and birefringence are related by the following relationship:

$R = t (n_{gamma} - n_{alpha})$

R = retardation, t = crystal thickness in μm, and

n alpha, gamma = indices of refraction.

Examination of the equation for asbestos minerals reveals that the visible colors for almost all common asbestos minerals and fiber sizes are shades of gray and black. The eye is relatively poor at discriminating different shades of gray. It is very good at discriminating different colors. In order to compensate for the low retardation, a compensator is added to the light train between the polarization elements. The compensator used for this test is a gypsum plate of known thickness and birefringence. Such a compensator when oriented at 45 deg. to the polarizer direction, provides a retardation of 530 nm of the 530 nm wavelength color. This enhances the red color and gives the background a characteristic red to red–magenta color. If this "full–wave" compensator is in place when the asbestos preparation is inserted into the light train, the colors seen on the fibers are quite different. Gypsum, like asbestos has a fast axis and a slow axis. When a fiber is aligned with its fast axis in the same direction as the fast axis of the gypsum plate, the ray vibrating in the slow direction is re-

tarded by both the asbestos and the gypsum. This results in a higher retardation than would be present for either of the two minerals. The color seen is a second order blue. When the fiber is rotated 90 deg. using the rotating stage, the slow direction of the fiber is now aligned with the fast direction of the gypsum and the fast direction of the fiber is aligned with the slow direction of the gypsum. Thus, one ray vibrates faster in the fast direction of the gypsum, and slower in the slow direction of the fiber; the other ray will vibrate slower in the slow direction of the gypsum and faster in the fast direction of the fiber. In this case, the effect is subtractive and the color seen is a first order yellow. As long as the fiber thickness does not add appreciably to the color, the same basic colors will be seen for all asbestos types except crocidolite. In crocidolite the colors will be weaker, may be in the opposite directions, and will be altered by the blue absorption color natural to crocidolite. Hundreds of other materials will give the same colors as asbestos, and therefore, this test is not definitive for asbestos. The test is useful in discriminating against fiberglass or other amorphous fibers such as some synthetic fibers. Certain synthetic fibers will show retardation colors different than asbestos; however, there are some forms of polyethylene and aramid which will show morphology and retardation colors similar to asbestos minerals. This test must be supplemented with a positive identification test when birefringent fibers are present which cannot be excluded by morphology. This test is relatively ineffective for use on fibers less than 1 μm in diameter. For positive confirmation TEM or SEM should be used if no larger bundles or fibers are visible.

4.6. Dispersion Staining

Dispersion microscopy or dispersion staining is the method of choice for the identification of asbestos in bulk materials. Becke line analysis is used by some laboratories and yields the same results as does dispersion staining for asbestos and can be used in lieu of dispersion staining. Dispersion staining is performed on the same platform as the phase-polar analysis with the analyzer and compensator removed. One polarizing element remains to define the direction of the light so that the different indices of refraction of the fibers may be separately determined. Dispersion microscopy is a dark-field technique when used for asbestos. Particles are imaged with scattered light. Light which is unscattered is blocked from reaching the eye either by the back field image mask in a McCrone objective or a back field image mask in the phase condenser. The most convenient method is to use the rotating phase condenser to move an oversized phase ring into place. The ideal size for this ring is for the central disk to be just larger than the objective entry aperture as viewed in the back focal plane. The larger the disk, the less scattered light reaches the eye. This will have the effect of diminishing the intensity of dispersion color and will shift the actual color seen. The colors seen vary even on microscopes from the same manufacturer. This is due to the different bands of wavelength exclusion by different mask sizes. The mask may either reside in the condenser or in the objective back focal plane. It is imperative that the analyst determine by experimentation with asbestos standards what the appropriate colors should be for each asbestos type. The colors depend also on the temperature of the preparation and the exact chemistry of the asbestos. Therefore, some slight differences from the standards should be allowed. This is not a serious problem for commercial asbestos uses. This technique is used for identification of the indices of refraction for fibers by recognition of color. There is no direct numerical readout of the index of refraction. Correlation of color to actual index of refraction is possible by referral to published conversion tables. This is not necessary for the analysis of asbestos. Recognition of appropriate colors along with the proper morphology are deemed sufficient to identify the commercial asbestos minerals. Other techniques including SEM, TEM, and XRD may be required to provide additional information in order to identify other types of asbestos

Make a preparation in the suspected matching high dispersion oil, e.g., n=1.550 for chrysotile. Perform the preliminary tests to determine whether the fibers are birefringent or not. Take note of the morphological character. Wavy fibers are indicative of chrysotile while long, straight, thin, frayed fibers are indicative of amphibole asbestos. This can aid in the selection of the appropriate matching oil. The microscope is set up and the polarization direction is noted as in Section 4.4. Align a fiber with the polarization direction. Note the color. This is the color parallel to the polarizer. Then rotate the fiber rotating the stage 90 deg. so that the polarization direction is across the fiber. This is the perpendicular position. Again note the color. Both colors must be consistent with standard asbestos minerals in the correct direction for a positive identification of asbestos. If only one of the colors is correct while the other is not, the identification is not positive. If the colors in both directions are bluish-white, the analyst has chosen a matching index oil which is higher than the correct matching oil, e.g. the analyst has used n=1.620 where chrysotile is present. The next lower oil (Section 3.5.) should be used to prepare another specimen. If the color in both directions is yellow-white to straw-yellow-white, this indicates that the index of the oil is lower than the index of the fiber, e.g. the preparation is in n=1.550 while anthophyllite is present. Select the next higher oil (Section 3.5.) and prepare another slide. Continue in this fashion until a positive identification of all asbestos species present has been made or all possible asbestos species have been ruled out by negative results in this test. Certain plant fibers can have similar dispersion colors as asbestos. Take care to note and evaluate the morphology of the fibers or remove the plant fibers in pre-preparation. Coating material on the fibers such as carbonate or vinyl may destroy the dispersion color. Usually, there will be some outcropping of fiber which will show the colors sufficient for identification. When this is not the case, treat the sample as described in Section 3.3. and then perform dispersion staining. Some samples will yield to Becke line analysis if they are coated or electron microscopy can be used for identification.

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NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Appendix K to section 1529 filed 5–3–96; operative 7–3–96 (Register 96, No. 18).
2. Change without regulatory effect repealing and adopting new Figure 1 filed 5–19–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 21).

## § 1530. General Requirements of Mechanical Ventilation Systems.

(a) Design and Operation.

(1) When local exhaust ventilation is used, the system (including exhaust fans, jets, ducts, hoods, separators, and all necessary appurtenances) shall be designed, constructed, installed, inspected, tested, maintained, and operated so as to ensure the required protection by maintaining a volume and velocity of exhaust air sufficient to gather dusts, fumes, mists, vapors, or gases from the equipment or processes, and to convey them to suitable points of safe disposal, thereby preventing their dispersion in harmful quantities into the atmosphere of work rooms or other places where persons are employed.

(2) When general mechanical ventilation is used, the volume and distribution of air shall be sufficient to dilute airborne contaminant concentrations in employees' breathing zones to safe levels.

(b) Duration of Operations. The exhaust system shall be in operation continually during all operations for which it is designed. The system shall continue to operate some time after the cessation of said operations, the length of time to depend upon the individual circumstances and effectiveness of the ventilation system.

(c) Disposal of Exhaust Materials.

(1) The air outlet from every dust separator/collector and the dusts, fumes, mists, vapors or gases collected by an exhaust or ventilating system shall discharge to the outside atmosphere, provided that the exhaust system shall discharge to the outer air in such a manner that it will not cause a harmful exposure in any accessible workplace. Collecting systems which return air to work areas may be used if contaminants which accumulate in the work area air do not result in harmful exposure to employees.

(2) The air exhausted from blast–cleaning equipment, grinding, buffing, polishing equipment and all other equipment requiring exhausting of dust or particulate shall be discharged through dust–collecting equipment. Dust and refuse discharged from an exhaust system shall be disposed of in such a manner that it will not result in harmful exposure to employees.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 6–18–75; effective thirtieth day thereafter (Register 75, No. 25).
2. Amendment filed 12–13–84; effective thirtieth day thereafter (Register 84, No. 50).

## § 1531. Respiratory Protective Equipment.

The requirements applicable to construction work under this section are identical to those set forth in section 5144.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Amendment of subsections (a) and (b) filed 5–3–78; effective thirtieth day thereafter (Register 78, No. 18).
3. Amendment of subsection (g) filed 9–14–78; effective thirtieth day thereafter (Register 78, No. 37).
4. Amendment of subsection (e)(1) filed 10–18–79; effective thirtieth day thereafter (Register 79, No. 42).
5. Amendment filed 12–13–84; effective thirtieth day thereafter (Register 84, No. 50).
6. Amendment of subsection (h) filed 3–20–95; operative 4–19–95 (Register 95, No. 12).
7. Amendment of subsection (e)(3) filed 6–29–95; operative 7–29–95 (Register 95, No. 26).
8. Repealer and new section filed 8–25–98; operative 11–23–98 (Register 98, No. 35).

## § 1532. Cadmium.

(a) Scope.

This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms, in all construction work where an employee may potentially be exposed to cadmium. Construction work is defined as work involving construction, alteration and/or repair, including but not limited to the following:

(1) wrecking, demolition or salvage of structures where cadmium or materials containing cadmium are present;

(2) use of cadmium containing–paints and cutting, brazing, burning, grinding or welding on surfaces that were painted with cadmium–containing paints;

(3) construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain cadmium, or materials containing cadmium;

(4) cadmium welding; cutting and welding cadmium–plated steel; brazing or welding with cadmium alloys;

(5) installation of products containing cadmium;

(6) electrical grounding with cadmium welding, or electrical work using cadmium–coated conduit;

(7) maintaining or retrofitting cadmium–coated equipment;

(8) cadmium contamination/emergency cleanup; and

(9) transportation, disposal, storage, or containment of cadmium or materials containing cadmium on the site or location at which construction activities are performed.

(b) Definitions.

Action level (AL) is defined as an airborne concentration of cadmium of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$), calculated as an 8–hour time–weighted average (TWA).

Authorized person means any person authorized by the employer and required by work duties to be present in regulated areas or any person authorized by the Chief to be in regulated areas.

Chief means the Chief of the Division of Occupational Safety and Health, or designee.

Competent person, in accordance with section 1504, means a person designated by the employer to act on the employer's behalf who is capable of identifying existing and potential cadmium hazards in the workplace and the proper methods to control them in order to protect workers, and has the authority necessary to take prompt corrective measures to eliminate or control such hazards. The duties of a competent person include at least the following: determining prior to the performance of work whether cadmium is present in the workplace; establishing, where necessary, regulated areas and assuring that access to and from those areas is limited to authorized employees; assuring the adequacy of any employee exposure monitoring required by this standard; assuring that all employees exposed to air cadmium levels above the PEL wear appropriate

personal protective equipment and are trained in the use of appropriate methods of exposure control; assuring that proper hygiene facilities are provided and that workers are trained to use those facilities; and assuring that the engineering controls required by this standard are implemented, maintained in proper operating condition, and functioning properly.

Emergency means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which results in an unexpected and potentially hazardous release of Cadmium.

Employee exposure and similar language referring to the air cadmium level to which an employee is exposed means the exposure to airborne cadmium that would occur if the employee were not using respiratory protective equipment.

Final medical determination is the written medical opinion of the employee's health status by the examining physician under subsections (*l*)(3)–(12) or, if multiple physician review under subsection (*l*)(13) or the alternative physician determination under subsection (*l*)(14) is invoked, it is the final, written medical finding, recommendation or determination that emerges from that process.

High–efficiency particulate air [HEPA] filter means a filter capable of trapping and retaining at least 99.97 percent of mono–dispersed particles of 0.3 micrometers in diameter.

NIOSH means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Regulated area means an area demarcated by the employer where an employee's exposure to airborne concentrations of cadmium exceeds, or can reasonably be expected to exceed the permissible exposure limit (PEL).

(c) Permissible Exposure Limit (PEL).

The employer shall assure that no employee is exposed to an airborne concentration of cadmium in excess of five micrograms per cubic meter of air (5 $\mu g/m^3$), calculated as an eight–hour time–weighted average exposure (TWA).

(d) Exposure Monitoring.

(1) General.

(A) Prior to the performance of any construction work where employees may be potentially exposed to cadmium, the employer shall establish the applicability of this standard by determining whether cadmium is present in the workplace and whether there is the possibility that employee exposures will be at or above the action level. The employer shall designate a competent person who shall make this determination. Investigation and material testing techniques shall be used, as appropriate, in the determination. Investigation shall include a review of relevant plans, past reports, material safety data sheets, and other available records, and consultations with the property owner and discussions with appropriate individuals and agencies.

(B) Where cadmium has been determined to be present in the workplace, and it has been determined that there is a possibility the employee's exposure will be at or above the action level, the competent person shall identify employees potentially exposed to cadmium at or above the action level.

(C) Determinations of employee exposure shall be made from breathing–zone air samples that reflect the monitored employee's regular, daily 8–hour TWA exposure to cadmium.

(D) Eight–hour TWA exposures shall be determined for each employee on the basis of one or more personal breathing–zone air samples reflecting full shift exposure on each shift, for each job classification, in each work area. Where several employees perform the same job tasks, in the same job classification, on the same shift, in the same work area, and the length, duration, and level of cadmium exposures are similar, an employer may sample a representative fraction of the employees instead of all employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) expected to have the highest cadmium exposures.

(2) Specific.

(A) Initial monitoring. Except as provided for in subsection (d)(2)(C), where a determination conducted under subsection (d)(1)(A) shows the possibility of employee exposure to cadmium at or above the action level, the employer shall conduct exposure monitoring as soon as practicable that is representative of the exposure for each employee in the workplace who is or may be exposed to cadmium at or above the action level.

(B) In addition, if the employee periodically performs tasks that may expose the employee to a higher concentration of airborne cadmium, the employee shall be monitored while performing those tasks.

(C) Where the employer has objective data, as defined in subsection (n)(2), demonstrating that employee exposure to cadmium will not exceed airborne concentrations at or above the action level under the expected conditions of processing, use, or handling, the employer may rely upon such data instead of implementing initial monitoring.

(D) Where a determination conducted under subsections (d)(1) or (d)(2) is made that a potentially exposed employee is not exposed to airborne concentrations of cadmium at or above the action level, the employer shall make a written record of such determination. The record shall include at least the monitoring data developed under subsections (d)(2)(A)–(C), where applicable, and shall also include the date of determination, and the name and social security number of each employee.

(3) Monitoring Frequency (periodic monitoring).

(A) If the initial monitoring or periodic monitoring reveals employee exposures to be at or above the action level, the employer shall monitor at a frequency and pattern needed to assure that the monitoring results reflect with reasonable accuracy the employee's typical exposure levels, given the variability in the tasks performed, work practices, and environmental conditions on the job site, and to assure the adequacy of respiratory selection and the effectiveness of engineering and work practice controls.

(B) If the initial monitoring or the periodic monitoring indicates that employee exposures are below the action level and that result is confirmed by the results of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(4) Additional Monitoring.

The employer also shall institute the exposure monitoring required under subsections (d)(2)(A) and (d)(3) whenever there has been a change in the raw materials, equipment, personnel, work practices, or finished products that may result in additional employees being exposed to cadmium at or above the action level or in employees already exposed to cadmium at or above the action level being exposed above the PEL, or whenever the employer or competent person has any reason to suspect that any other change might result in such further exposure.

(5) Employee Notification of Monitoring Results.

[The next page is 165.]

(A) No later than five working days after the receipt of the results of any monitoring performed under this section, the employer shall notify each affected employee individually in writing of the results. In addition, within the same time period, the employer shall post the results of the exposure monitoring in an appropriate location that is accessible to all affected employees.

(B) Wherever monitoring results indicate that employee exposure exceeds the PEL, the employer shall include in the written notice a statement that the PEL has been exceeded and a description of the corrective action being taken by the employer to reduce employee exposure to or below the PEL.

(6) Accuracy of Measurement.

The employer shall use a method of monitoring and analysis that has an accuracy of not less than plus or minus 25 percent (±25%), with a confidence level of 95 percent, for airborne concentrations of cadmium at or above the action level and the permissible exposure limit.

(e) Regulated Areas.

(1) Establishment.

The employer shall establish a regulated area wherever an employee's exposure to airborne concentrations of cadmium is, or can reasonably be expected to be in excess of the permissible exposure limit (PEL).

(2) Demarcation.

Regulated areas shall be demarcated from the rest of the workplace in any manner that adequately establishes and alerts employees of the boundaries of the regulated area, including employees who are or may be incidentally in the regulated areas, and that protects persons outside the area from exposure to airborne concentrations of cadmium in excess of the PEL.

(3) Access.

Access to regulated areas shall be limited to authorized persons.

(4) Provision of Respirators.

Each person entering a regulated area shall be supplied with and required to use a respirator, selected in accordance with subsection (g)(2).

(5) Prohibited Activities.

The employer shall assure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas, or carry the products associated with any of these activities into regulated areas or store such products in those areas.

(f) Methods of Compliance.

(1) Compliance Hierarchy.

(A) Except as specified in subsection (f)(1)(B), the employer shall implement engineering and work practice controls to reduce and maintain employee exposure to cadmium at or below the PEL, except to the extent that the employer can demonstrate that such controls are not feasible.

(B) The requirement to implement engineering controls to achieve the PEL does not apply where the employer demonstrates the following:

1. the employee is only intermittently exposed; and

2. the employee is not exposed above the PEL on 30 or more days per year (12 consecutive months).

(C) Wherever engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer nonetheless shall implement such controls to reduce exposures to the lowest levels achievable. The employer shall supplement such controls with respiratory protection that complies with the requirements of subsection (g) and the PEL.

(D) The employer shall not use employee rotation as a method of compliance.

(2) Specific Operations.

(A) Abrasive blasting. Abrasive blasting on cadmium or cadmium–containing materials shall be conducted in a manner that will provide adequate protection.

(B) Heating cadmium and cadmium–containing materials. Welding, cutting, and other forms of heating of cadmium or cadmium–containing materials shall be conducted in accordance with the requirements of sections 1536 and 1537, where applicable.

(3) Prohibitions.

(A) High speed abrasive disc saws and similar abrasive power equipment shall not be used for work on cadmium or cadmium–containing materials unless they are equipped with appropriate engineering controls to minimize emissions, if the exposure levels are above the PEL.

(B) Materials containing cadmium shall not be applied by spray methods, if exposures are above the PEL, unless employees are protected with supplied–air respirators with full facepiece, hood, helmet, suit, operated in positive pressure mode and measures are instituted to limit overspray and prevent contamination of adjacent areas.

(4) Mechanical Ventilation.

(A) When ventilation is used to control exposure, measurements that demonstrate the effectiveness of the system in controlling exposure, such as capture velocity, duct velocity, or static pressure shall be made as necessary to maintain its effectiveness.

(B) Measurements of the system's effectiveness in controlling exposure shall be made as necessary within five working days of any change in production, process, or control that might result in a significant increase in employee exposure to cadmium.

(C) Recirculation of air. If air from exhaust ventilation is recirculated into the workplace, the system shall have a high efficiency filter and be monitored to assure effectiveness.

(D) Procedures shall be developed and implemented to minimize employee exposure to cadmium when maintenance of ventilation systems and changing of filters is being conducted.

(5) Compliance Program.

(A) Where employee exposure to cadmium exceeds the PEL and the employer is required under subsection (f)(1) to implement controls to comply with the PEL prior to the commencement of the job, the employer shall establish and implement a written compliance program to reduce employee exposure to or below the PEL. To the extent that engineering and work practice controls cannot reduce exposures to or below the PEL, the employer shall include in the written compliance program the use of appropriate respiratory protection to achieve compliance with the PEL.

(B) Written compliance programs shall be reviewed and updated as often and as promptly as necessary to reflect significant changes in the employer's compliance status or significant changes in the lowest air cadmium level that is technologically feasible.

(C) A competent person shall review the comprehensive compliance program initially and after each change.

(D) Written compliance programs shall be provided upon request for examination and copying to the Chief, NIOSH, affected employees, and designated employee representatives.

(g) Respiratory Protection.

(1) General. For employees who use respirators required by this section, the employer must provide respirators that comply with the requirements of this subsection. Respirators must be used during:

(A) Periods necessary to install or implement feasible engineering and work practice controls when employee exposures exceed the PEL;

(B) Maintenance and repair activities and during those brief or intermittent operations where exposures exceed the PEL and engineering and work practice controls are not feasible, or are not required;

(C) Work operations in the regulated areas specified in subsection (e);

(D) Work operations for which the employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;

(E) Emergencies;

(F) Work operations for which an employee who is exposed to cadmium at or above the action level requests a respirator; and

(G) Work operations for which engineering controls are not required under subsection (f)(1)(B) to reduce employee exposures that exceed the PEL.

(2) Respirator program.

(A) The employer must implement a respiratory protection program in accordance with section 5144(b) (except (d)(1)(C)) through (m).

(B) If an employee exhibits breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination in accordance with subsection (*l*)(6)(B) to determine if the employee can use a respirator while performing the required duties.

(C) No employee must use a respirator when, based on their most recent medical examination, the examining physician determines that the employee will be unable to function normally while using a respirator. If the physician determines the employee must be limited in, or removed from, their current job because of the employee's inability to use a respirator, the job limitation or removal must be conducted in accordance with subsections (*l*)(11) and (12).

(3) Respirator Selection.

(A) The employer must select, and provide to employees, the appropriate respirators specified in Section 5144(d)(3)(A)1.

(B) The employer shall provide a powered, air-purifying respirator (PAPR) in lieu of a negative pressure respirator wherever:

1. An employee entitled to a respirator chooses to use this type of respirator; and

2. This respirator will provide adequate protection to the employee.

(C) The employer shall provide employees with full facepiece respirators when they experience eye irritation.

(D) The employer shall provide HEPA filters for powered and non-powered air-purifying respirators.

(h) Emergency Situations.

The employer shall develop and implement a written plan for dealing with emergency situations involving substantial releases of airborne cadmium. The plan shall include provisions for the use of appropriate respirators and personal protective equipment. In addition, employees not essential to correcting the emergency situation shall be restricted from the area and normal operations halted in that area until the emergency is abated.

(i) Protective Work Clothing and Equipment.

(1) Provision and Use.

If an employee is exposed to airborne cadmium above the PEL or where skin or eye irritation is associated with cadmium exposure at any level, the employer shall provide at no cost to the employee, and assure that the employee uses, appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments. Protective work clothing and equipment includes, but is not limited to:

(A) Coveralls or similar full-body work clothing;

(B) Gloves, head coverings, and boots or foot coverings; and

(C) Face shields, vented goggles, or other appropriate protective equipment that complies with sections 1514 to 1522.

(2) Removal and Storage.

(A) The employer shall assure that employees remove all protective clothing and equipment contaminated with cadmium at the completion of the work shift and do so only in change rooms provided in accordance with subsection (j)(1).

(B) The employer shall assure that no employee takes cadmium-contaminated protective clothing or equipment from the workplace, except for employees authorized to do so for purposes of laundering, cleaning, maintaining, or disposing of cadmium-contaminated protective clothing and equipment at an appropriate location or facility away from the workplace.

(C) The employer shall assure that contaminated protective clothing and equipment, when removed for laundering, cleaning, maintenance, or disposal, is placed and stored in sealed, impermeable bags or other closed, impermeable containers that are designed to prevent dispersion of cadmium dust.

(D) The employer shall assure that containers of contaminated protective clothing and equipment that are to be taken out of the change rooms or the workplace for laundering, cleaning, maintenance or disposal shall bear labels in accordance with subsection (m)(3).

(3) Cleaning, Replacement, and Disposal.

(A) The employer shall provide the protective clothing and equipment required by subsection (i)(1) in a clean and dry condition as often as necessary to maintain its effectiveness, but in any event at least weekly. The employer is responsible for cleaning and laundering the protective clothing and equipment required by this subsection to maintain its effectiveness and is also responsible for disposing of such clothing and equipment.

(B) The employer also is responsible for repairing or replacing required protective clothing and equipment as needed to maintain its effectiveness. When rips or tears are detected while an employee is working they shall be immediately mended, or the worksuit shall be immediately replaced.

(C) The employer shall prohibit the removal of cadmium from protective clothing and equipment by blowing, shaking, or any other means that disperses cadmium into the air.

(D) The employer shall assure that any laundering of contaminated clothing or cleaning of contaminated equipment in the workplace is done in a manner that prevents the release of airborne cadmium in excess of the permissible exposure limit prescribed in subsection (c).

(E) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with cadmium of the potentially harmful effects of exposure to cadmium, and that the clothing and equipment should be laundered or cleaned in a manner to effectively prevent the release of airborne cadmium in excess of the PEL.

(j) Hygiene Areas and Practices.

(1) General.

For employees whose airborne exposure to cadmium is above the PEL, the employer shall provide clean change rooms, handwashing facilities, showers, and lunchroom facilities that comply with sections 1524, 1526 and 1527.

(2) Change Rooms.

The employer shall assure that change rooms are equipped with separate storage facilities for street clothes and for protective clothing and equipment, which are designed to prevent dispersion of cadmium and contamination of the employee's street clothes.

(3) Showers and Handwashing Facilities.

(A) The employer shall assure that employees whose airborne exposure to cadmium is above the PEL shower during the end of the work shift.

(B) The employer shall assure that employees who are exposed to cadmium above the PEL wash their hands and faces prior to eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics.

(4) Lunchroom Facilities.

(A) The employer shall assure that the lunchroom facilities are readily accessible to employees, that tables for eating are maintained free of cadmium, and that no employee in a lunchroom facility is exposed at any time to cadmium at or above a concentration of 2.5 $\mu g/m^3$.

(B) The employer shall assure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface cadmium has been removed from the clothing and equipment by HEPA vacuuming or some other method that removes cadmium dust without dispersing it.

(k) Housekeeping.

(1) All surfaces shall be maintained as free as practicable of accumulations of cadmium.

(2) All spills and sudden releases of material containing cadmium shall be cleaned up as soon as possible.

(3) Surfaces contaminated with cadmium shall, wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of cadmium becoming airborne.

(4) HEPA-filtered vacuuming equipment or equally effective filtration methods shall be used for vacuuming. The equipment shall be used and emptied in a manner that minimizes the reentry of cadmium into the workplace.

(5) Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other methods that minimize the likelihood of cadmium becoming airborne have been tried and found not to be effective.

(6) Compressed air shall not be used to remove cadmium from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air.

(7) Waste, scrap, debris, bags, containers, personal protective equipment, and clothing contaminated with cadmium and consigned for disposal shall be collected and disposed of in sealed impermeable bags or other closed, impermeable containers. These bags and containers shall be labeled in accordance with subsection (m)(3).

(*l*) Medical Surveillance.

(1) General.

(A) Scope.

1. Currently exposed – The employer shall institute a medical surveillance program for all employees who are or may be exposed at or above the action level and all employees who perform the following tasks, operations or jobs: electrical grounding with cadmium welding; cutting, brazing, burning, grinding or welding on surfaces that were painted with cadmium–containing paints; electrical work using cadmium–coated conduit; use of cadmium containing paints; cutting and welding cadmium–plated steel; brazing or welding with cadmium alloys; fusing of reinforced steel by cadmium welding; maintaining or retrofitting cadmium–coated equipment; and, wrecking and demolition where cadmium is present. A medical surveillance program will not be required if the employer demonstrates that the employee:

a. is not currently exposed by the employer to airborne concentrations of cadmium at or above the action level on 30 or more days per year (twelve consecutive months); and,

b. is not currently exposed by the employer in those tasks on 30 or more days per year (twelve consecutive months).

2. Previously exposed – The employer shall also institute a medical surveillance program for all employees who might previously have been exposed to cadmium by the employer prior to the effective date of this standard in tasks specified under subsection (*l*)(1)(A)1., unless the employer demonstrates that the employee did not in the years prior to the effective date of this section work in those tasks for the employer with exposure to cadmium for an aggregated total of more than 12 months.

(B) To determine an employee's fitness for using a respirator, the employer shall provide the limited medical examination specified in subsection (*l*)(6).

(C) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a licensed physician, who has read and is familiar with the health effects section of Appendix A, the regulatory text of this section, the protocol for sample handling and lab selection in Appendix F, and the questionnaire of Appendix D.

(D) The employer shall provide the medical surveillance required by this section, including multiple physician review under subsection (*l*)(13) without cost to employees, and at a time and place that is reasonable and convenient to employees.

(E) The employer shall assure that the collecting and handling of biological samples of cadmium in urine (CdU), cadmium in blood (CdB), and beta–2 microglobulin in urine ($\beta_2$–M) taken from employees under this section is done in a manner that assures their reliability and that analysis of biological samples of cadmium in urine (CdU), cadmium in blood (CdB), and beta–2 microglobulin in urine ($\beta_2$–M) taken from employees under this section is performed in laboratories with demonstrated proficiency to perform the particular analysis. (See Appendix F.)

(2) Initial Examination.

(A) For employees covered by medical surveillance under subsection (*l*)(1)(A), the employer shall provide an initial medical examination. The examination shall be provided to those employees within 30 days after initial assignment to a job with exposure to cadmium or no later than 90 days after the effective date of this section, whichever date is later.

(B) The initial medical examination shall include:

1. A detailed medical and work history, with emphasis on: past, present, and anticipated future exposure to cadmium; any history of renal, cardiovascular, respiratory, hematopoietic, reproductive, and/or musculo–skeletal system dysfunction; current usage of medication with potential nephrotoxic side–effects; and smoking history and current status; and

2. Biological monitoring that includes the following tests:

a. Cadmium in urine (CdU), standardized to grams of creatinine (g/Cr);

b. Beta–2 microglobulin in urine ($\beta_2$–M), standardized to grams of creatinine (g/Cr), with pH specified, as described in Appendix F; and

c. Cadmium in blood (CdB), standardized to liters of whole blood (lwb).

(C) Recent Examination: An initial examination is not required to be provided if adequate records show that the employee has been examined in accordance with the requirements of subsection (*l*)(2)(B) within the past 12 months. In that case, such records shall be maintained as part of the employee's medical record and the prior exam shall be treated as if it were an initial examination for the purposes of subsections (*l*)(3) and (4).

(3) Actions Triggered by Initial Biological Monitoring:

(A) If the results of the biological monitoring tests in the initial examination show the employee's CdU level to be at or below 3 µg/g Cr, $\beta_2$–M level to be at or below 300 µg/g Cr and CdB level to be at or below 5 µg/lwb, then:

1. for employees who are subject to medical surveillance under subsections (*l*)(1)(A)1. because of current or anticipated exposure to cadmium, the employer shall provide the minimum level of periodic medical surveillance in accordance with the requirements in subsection (*l*)(4)(A); and

2. for employees who are subject to medical surveillance under subsection (*l*)(1)(A)2. because of prior but not current exposure, the employer shall provide biological monitoring for CdU, $\beta_2$–M, and CdB one year after the initial biological monitoring and then the employer shall comply with the requirements of subsection (*l*)(4)(F).

(B) For all employees who are subject to medical surveillance under subsection (*l*)(1)(A), if the results of the initial biological monitoring tests show the level of CdU to exceed 3 µg/g Cr, the level of $\beta_2$–M to be in excess of 300 µg/g Cr, or the level of CdB to be in excess of 5 µg/lwb, the employer shall:

1. within two weeks after receipt of biological monitoring results, reassess the employee's occupational exposure to cadmium as follows:

a. reassess the employee's work practices and personal hygiene;

b. reevaluate the employee's respirator use, if any, and the respirator program;

c. review the hygiene facilities;

d. reevaluate the maintenance and effectiveness of the relevant engineering controls;

e. assess the employee's smoking history and status;

2. within 30 days after the exposure reassessment, specified in (*l*)(3)(B)1., take reasonable steps to correct any deficiencies found in the reassessment that may be responsible for the employee's excess exposure to cadmium; and,

3. within 90 days after receipt of biological monitoring results, provide a full medical examination to the employee in accordance with the requirements of subsection (*l*)(4)(B). After completing the medical examination, the examining physician shall determine in a written medical opinion whether to medically remove the employee. If the physician determines that medical removal is not necessary, then until the employee's CdU level falls to or below 3 µg/g Cr, $\beta_2$–M level falls to or below 300 µg/g Cr and CdB level falls to or below 5 µg/lwb, the employer shall:

a. Provide biological monitoring in accordance with subsection (*l*)(2)(B)2. on a semiannual basis; and

b. Provide annual medical examinations in accordance with subsection (*l*)(4)(B).

(C) For all employees who are subject to medical surveillance under subsection (*l*)(1)(A), if the results of the initial biological monitoring tests show the level of CdU to be in excess of 15 μg/g Cr, or the level of CdB to be in excess of 15 μg/lwb, or the level of $\beta_2$–M to be in excess of 1,500 μg/g Cr, the employer shall comply with the requirements of subsections (*l*)(3)(B)1.–2.. Within 90 days after receipt of biological monitoring results, the employer shall provide a full medical examination to the employee in accordance with the requirements of subsection (*l*)(4)(B). After completing the medical examination, the examining physician shall determine in a written medical opinion whether to medically remove the employee. However, if the initial biological monitoring results and the biological monitoring results obtained during the medical examination both show that: CdU exceeds 15 μg/g Cr; or CdB exceeds 15 μg/lwb; or $\beta_2$–M exceeds 1500 μg/g Cr, and in addition CdU exceeds 3 μg/g Cr or CdB exceeds 5 μg/liter of whole blood, then the physician shall medically remove the employee from exposure to cadmium at or above the action level. If the second set of biological monitoring results obtained during the medical examination does not show that a mandatory removal trigger level has been exceeded, then the employee is not required to be removed by the mandatory provisions of this subsection. If the employee is not required to be removed by the mandatory provisions of this subsection or by the physician's determination, then until the employee's CdU level falls to or below 3 μg/g Cr, $\beta_2$–M level falls to or below 300 μg/g Cr and CdB level falls to or below 5 μg/lwb, the employer shall:

1. Periodically reassess the employee's occupational exposure to cadmium;

2. Provide biological monitoring in accordance with subsection (*l*)(2)(B)2. on a quarterly basis; and

3. Provide semiannual medical examinations in accordance with subsection (*l*)(4)(B).

(D) For all employees to whom medical surveillance is provided, beginning on January 1, 1999, and in lieu of subsection (*l*)(3)(C), whenever the results of initial biological monitoring tests show the employee's CdU level to be in excess of 7 μg/g Cr, or $\beta_2$–M level to be in excess of 750 μg/g Cr, or CdB level to be in excess of 10 μg/lwb, the employer shall comply with the requirements of subsection (*l*)(3)(B)1.–2.. Within 90 days after receipt of biological monitoring results, the employer shall provide a full medical examination to the employee in accordance with the requirements of subsection (*l*)(4)(B). After completing the medical examination, the examining physician shall determine in a written medical opinion whether to medically remove the employee. However, if the initial biological monitoring results and the biological monitoring results obtained during the medical examination both show that: CdU exceeds 7 μg/g Cr; or CdB exceeds 10 μg/lwb; or $\beta_2$–M exceeds 750 μg/g Cr, and in addition CdU exceeds 3 μg/g Cr or CdB exceeds 5 μg/liter of whole blood, then the physician shall medically remove the employee from exposure to cadmium at or above the action level. If the second set of biological monitoring results obtained during the medical examination does not show that a mandatory removal trigger level has been exceeded, then the employee is not required to be removed by the mandatory provisions of this subsection. If the employee is not required to be removed by the mandatory provisions of this subsection or by the physician's determination, then until the employee's CdU level falls to or below 3 μg/g Cr, $\beta_2$–M level falls to or below 300 μg/g Cr and CdB level falls to or below 5 μg/lwb, the employer shall:

1. Periodically reassess the employee's occupational exposure to cadmium;

2. Provide biological monitoring in accordance with subsection (*l*)(2)(B)2. on a quarterly basis; and

3. Provide semiannual medical examinations in accordance with subsection (*l*)(4)(B).

(4) Periodic Medical Surveillance.

(A) For each employee who is covered by medical surveillance under subsection (*l*)(1)(A)1. because of current or anticipated exposure to cadmium, the employer shall provide at least the minimum level of periodic medical surveillance, which consists of periodic medical examinations and periodic biological monitoring. A periodic medical examination shall be provided within one year after the initial examination required by subsection (*l*)(2) and thereafter at least biennially. Biological sampling shall be provided at least annually either as part of a periodic medical examination or separately as periodic biological monitoring.

(B) The periodic medical examination shall include:

1. A detailed medical and work history, or update thereof, with emphasis on: past, present and anticipated future exposure to cadmium; smoking history and current status; reproductive history; current use of medications with potential nephrotoxic side–effects; any history of renal, cardiovascular, respiratory, hematopoietic, and/or musculo–skeletal system dysfunction; and as part of the medical and work history, for employees who wear respirators, questions 3–11 and 25–32 in Appendix D;

2. A complete physical examination with emphasis on: blood pressure, the respiratory system, and the urinary system;

3. A 14 inch by 17 inch, or a reasonably standard sized posterior–anterior chest X–ray (after the initial X–ray, the frequency of chest X–rays is to be determined by the examining physician);

4. Pulmonary function tests, including forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV1);

5. Biological monitoring, as required in subsection (*l*)(2)(B)2.;

6. Blood analysis, in addition to the analysis required under subsection (*l*)(2)(B)2., including blood urea nitrogen, complete blood count, and serum creatinine;

7. Urinalysis, in addition to the analysis required under subsection (*l*)(2)(B)2., including the determination of albumin, glucose, and total and low molecular weight proteins;

8. For males over 40 years old, prostate palpation, or other at least as effective diagnostic test(s), and;

9. Any additional tests or procedures deemed appropriate by the examining physician.

(C) Periodic biological monitoring shall be provided in accordance with subsection (*l*)(2)(B)2..

(D) If the results of periodic biological monitoring or the results of biological monitoring performed as part of the periodic medical examination show the level of the employee's CdU, $\beta_2$–M, or CdB to be in excess of the levels specified in subsections (*l*)(3)(B) or (C); or, beginning on January 1, 1999, in excess of the levels specified in subsection (*l*)(3)(B) or (D), the employer shall take the appropriate actions specified in subsections (*l*)(3)(B)–(D), respectively.

(E) For previously exposed employees under subsection (*l*)(1)(A)2.:

1. If the employee's levels of CdU did not exceed 3 μg/g Cr, CdB did not exceed 5 μg/lwb, and $\beta_2$–M did not exceed 300 μg/g Cr in the initial biological monitoring tests, and if the results of the followup biological monitoring required by subsection (*l*)(3)(A)2. one year after the initial examination confirm the previous results, the employer may discontinue all periodic medical surveillance for that employee.

2. If the initial biological monitoring results for CdU, CdB, or $\beta_2$–M were in excess of the levels specified in (*l*)(3)(A), but subsequent biological monitoring results required by (*l*)(3)(B)–(D) show that the employee's CdU levels no longer exceed 3 μg/g Cr, CdB levels no longer exceed 5 μg/lwb, and $\beta_2$–M levels no longer exceed 300 μg/g Cr, the employer shall provide biological monitoring for CdU, CdB, and $\beta_2$–M one year after these most recent biological monitoring results. If the results of the followup biological monitoring, specified in this subsection, confirm the previous results, the employer may discontinue all periodic medical surveillance for that employee.

3. However, if the results of the follow–up tests specified in (*l*)(4)(E)1. or 2. indicate that the level of the employee's CdU, $\beta_2$–M, or CdB exceeds these same levels, the employer is required to provide annual medical examinations in accordance with the provisions of subsection

(*l*)(4)(B) until the results of biological monitoring are consistently below these levels or the examining physician determines in a written medical opinion that further medical surveillance is not required to protect the employee's health.

(F) A routine, biennial medical examination is not required to be provided in accordance with subsections (*l*)(3)(A) and (*l*)(4) if adequate medical records show that the employee has been examined in accordance with the requirements of subsection (*l*)(4)(B) within the past 12 months. In that case, such records shall be maintained by the employer as part of the employee's medical record, and the next routine, periodic medical examination shall be made available to the employee within two years of the previous examination.

(5) Actions Triggered by Medical Examinations:

(A) If the results of a medical examination carried out in accordance with this section indicate any laboratory or clinical finding consistent with cadmium toxicity that does not require employer action under subsections (*l*)(2), (3) or (4), the employer shall take the following steps and continue to take them until the physician determines that they are no longer necessary.

1. Periodically reassess: the employee's work practices and personal hygiene; the employee's respirator use, if any; the employee's smoking history and status; the respiratory protection program; the hygiene facilities; the maintenance and effectiveness of the relevant engineering controls; and take all reasonable steps to correct the deficiencies found in the reassessment that may be responsible for the employee's excess exposure to cadmium.

2. Provide semi-annual medical reexaminations to evaluate the abnormal clinical sign(s) of cadmium toxicity until the results are normal or the employee is medically removed; and

3. Where the results of tests for total proteins in urine are abnormal, provide a more detailed medical evaluation of the toxic effects of cadmium on the employee's renal system.

(6) Examination for Respirator Use:

(A) To determine an employee's fitness for respirator use, the employer shall provide a medical examination that includes the elements specified in (*l*)(6)(A)1.–4.. This examination shall be provided prior to the employee's being assigned to a job that requires the use of a respirator or no later than 90 days after this section goes into effect, whichever date is later, to any employee without a medical examination within the preceding 12 months that satisfies the requirements of this subsection.

1. A detailed medical and work history, or update thereof, with emphasis on: past exposure to cadmium; smoking history and current status; any history of renal, cardiovascular, respiratory, hematopoietic, and/or musculo-skeletal system dysfunction; a description of the job for which the respirator is required; and questions 3–11 and 25–32 in Appendix D;

2. A blood pressure test;

3. Biological monitoring of the employee's levels of CdU, CdB and $\beta_2$–M in accordance with the requirements of subsection (*l*)(2)(B)2., unless such results already have been obtained within the twelve months; and

4. Any other test or procedure that the examining physician deems appropriate.

(B) After reviewing all the information obtained from the medical examination required in subsection (*l*)(6)(A), the physician shall determine whether the employee is fit to wear a respirator.

(C) Whenever an employee has exhibited difficulty in breathing during a respirator fit test or during use of a respirator, the employer, as soon as possible, shall provide the employee with a periodic medical examination in accordance with subsection (*l*)(4)(B) to determine the employee's fitness to wear a respirator.

(D) Where the results of the examination required under subsection (*l*)(6)(A), (B) or (C) are abnormal, medical limitation or prohibition of respirator use shall be considered. If the employee is allowed to wear a respirator, the employee's ability to continue to do so shall be periodically evaluated by a physician.

(7) Emergency Examinations:

(A) In addition to the medical surveillance required in subsections (*l*)(2)–(6), the employer shall provide a medical examination as soon as possible to any employee who may have been acutely exposed to cadmium because of an emergency.

(B) The examination shall include the requirements of subsection (*l*)(4)(B), with emphasis on the respiratory system, other organ systems considered appropriate by the examining physician, and symptoms of acute overexposure, as identified in subsections II(B)(1)–(2) and IV of Appendix A.

(8) Termination of Employment Examination:

(A) At termination of employment, the employer shall provide a medical examination in accordance with subsection (*l*)(4)(B), including a chest X-ray where necessary, to any employee to whom at any prior time the employer was required to provide medical surveillance under subsections (*l*)(1)(A) or (*l*)(7). However, if the last examination satisfied the requirements of subsection (*l*)(4)(B) of this standard and was less than six months prior to the date of termination, no further examination is required unless otherwise specified in subsections (*l*)(3) or (*l*)(5);

(B) In addition, if the employer has discontinued all periodic medical surveillance under (*l*)(4)(E), no termination of employment medical examination is required.

(9) Information Provided to the Physician:

The employer shall provide the following information to the examining physician:

(A) A copy of this standard and appendices;

(B) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to cadmium;

(C) The employee's former, current, and anticipated future levels of occupational exposure to cadmium;

(D) A description of any personal protective equipment, including respirators, used or to be used by the employee, including when and for how long the employee has used that equipment; and

(E) Relevant results of previous biological monitoring and medical examinations.

(10) Physician's Written Medical Opinion:

(A) The employer shall promptly obtain a written, signed medical opinion from the examining physician for each medical examination performed on each employee. This written opinion shall contain:

1. The physician's diagnosis for the employee;

2. The physician's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to cadmium, including any indications of potential cadmium toxicity;

3. The results of any biological or other testing or related evaluations that directly assess the employee's absorption of cadmium;

4. Any recommended removal from, or limitation on the activities or duties of the employee or on the employee's use of personal protective equipment, such as respirators;

5. A statement that the physician has clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further evaluation or treatment, and any limitation on the employee's diet or use of medications.

(B) The employer shall promptly obtain a copy of the results of any biological monitoring provided by an employer to an employee independently of a medical examination under subsections (*l*)(2) and (*l*)(4), and, in lieu of a written medical opinion, an explanation sheet explaining those results.

(C) The employer shall instruct the physician not to reveal orally or in the written medical opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to cadmium.

(11) Medical Removal Protection (MRP):

(A) General.

1. The employer shall temporarily remove an employee from work where there is excess exposure to cadmium on each occasion that medical removal is required under subsections (*l*)(3), (*l*)(4), or (*l*)(6) and on each occasion that a physician determines in a written medical opinion that the employee should be removed from such exposure. The physician's determination may be based on biological monitoring results, inability to wear a respirator, evidence of illness, other signs or symptoms of cadmium-related dysfunction or disease, or any other reason deemed medically sufficient by the physician.

2. The employer shall medically remove an employee in accordance with subsection (*l*)(11) regardless of whether at the time of removal a job is available into which the removed employee may be transferred.

3. Whenever an employee is medically removed under subsection (*l*)(11), the employer shall transfer the removed employee to a job where the exposure to cadmium is within the permissible levels specified in that subsection as soon as one becomes available.

4. For any employee who is medically removed under the provisions of subsection (*l*)(11)(A), the employer shall provide follow-up medical examinations semi-annually until, in a written medical opinion, the examining physician determines that either the employee may be returned to his/her former job status or the employee must be permanently removed from excess cadmium exposure.

5. The employer may not return an employee who has been medically removed for any reason to his/her former job status until a physician determines in a written medical opinion that continued medical removal is no longer necessary to protect the employee's health.

(B) Where an employee is found unfit to wear a respirator under subsection (*l*)(6)(B), the employer shall remove the employee from work where exposure to cadmium is above the PEL.

(C) Where removal is based upon any reason other than the employee's inability to wear a respirator, the employer shall remove the employee from work where exposure to cadmium is at or above the action level.

(D) Except as specified in subsection (*l*)(11)(E), no employee who was removed because his/her level of CdU, CdB and/or $\beta_2$-M exceeded the trigger levels in subsections (*l*)(3) or (*l*)(4) may be returned to work with exposure to cadmium at or above the action level until the employee's levels of CdU fall to or below 3 μg/g Cr, CdB fall to or below 5 μg/lwb, and $\beta_2$-M fall to or below 300 μg/g Cr.

(E) However, when in the examining physician's opinion continued exposure to cadmium will not pose an increased risk to the employee's health and there are special circumstances that make continued medical removal an inappropriate remedy, the physician shall fully discuss these matters with the employee, and then in a written determination may return a worker to his/her former job status despite what would otherwise be unacceptably high biological monitoring results. Thereafter and until such time as the employee's biological monitoring results have decreased to levels where he/she could have been returned to his/her former job status, the returned employee shall continue medical surveillance as if he/she were still on medical removal. Until such time, the employee is no longer subject to mandatory medical removal. Subsequent questions regarding the employee's medical removal shall be decided solely by a final medical determination.

(F) Where an employer, although not required by this section to do so, removes an employee from exposure to cadmium or otherwise places limitations on an employee due to the effects of cadmium exposure on the employee's medical condition, the employer shall provide the same medical removal protection benefits to that employee under subsection (*l*)(12) as would have been provided had the removal been required under subsection (*l*)(11).

(12) Medical Removal Protection Benefits.

(A) The employer shall provide medical removal protection benefits to an employee for up to a maximum of 18 months each time, and while the employee is temporarily medically removed under subsection (*l*)(11).

(B) For purposes of this section, the requirement that the employer provide medical removal protection benefits means that the employer shall maintain the total normal earnings, seniority, and all other employee rights and benefits of the removed employee, including the employee's right to his/her former job status, as if the employee had not been removed from the employee's job or otherwise medically limited.

(C) Where, after 18 months on medical removal because of elevated biological monitoring results, the employee's monitoring results have not declined to a low enough level to permit the employee to be returned to his/her former job status:

1. the employer shall make available to the employee a medical examination pursuant to this section in order to obtain a final medical determination as to whether the employee may be returned to his/her former job status or must be permanently removed from excess cadmium exposure; and

2. the employer shall assure that the final medical determination indicates whether the employee may be returned to his/her former job status and what steps, if any, should be taken to protect the employee's health;

(D) The employer may condition the provision of medical removal protection benefits upon the employee's participation in medical surveillance provided in accordance with this section.

(13) Multiple Physician Review.

(A) If the employer selects the initial physician to conduct any medical examination or consultation provided to an employee under this section, the employee may designate a second physician to:

1. Review any findings, determinations, or recommendations of the initial physician; and

2. Conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

(B) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician provided by the employer conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, multiple physician review upon the employee doing the following within fifteen (15) days after receipt of this notice, or receipt of the initial physician's written opinion, whichever is later:

1. Informing the employer that he or she intends to seek a medical opinion; and

2. Initiating steps to make an appointment with a second physician.

(C) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

(D) If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee, through their respective physicians, shall designate a third physician to:

1. Review any findings, determinations, or recommendations of the other two physicians; and

2. Conduct such examinations, consultations, laboratory tests, and discussions with the other two physicians as the third physician deems necessary to resolve the disagreement among them.

(E) The employer shall act consistently with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement that is consistent with the recommendations of at least one of the other two physicians.

(14) Alternate Physician Determination.

The employer and an employee or designated employee representative may agree upon the use of any alternate form of physician determination in lieu of the multiple physician review provided by subsection (*l*)(13), so long as the alternative is expeditious and at least as protective of the employee.

(15) Information the Employer Must Provide the Employee.

(A) The employer shall provide a copy of the physician's written medical opinion to the examined employee within five working days after receipt thereof.

(B) The employer shall provide the employee with a copy of the employee's biological monitoring results and an explanation sheet explaining the results within five working days after receipt thereof.

(C) Within 30 days after a request by an employee, the employer shall provide the employee with the information the employer is required to provide the examining physician under subsection (*l*)(9).

(16) Reporting.

In addition to other medical events that are required to be reported on the Cal/OSHA Form No. 200, the employer shall report any abnormal condition or disorder caused by occupational exposure to cadmium associated with employment as specified in Title 8, Section 14301.

(m) Communication of Cadmium Hazards to Employees.

(1) General.

In communications concerning cadmium hazards, employers shall comply with the requirements of the Hazard Communication Standard, section 5194, including but not limited to the requirements concerning warning signs and labels, material safety data sheets (MSDS), and employee information and training. In addition, employers shall comply with the following requirements:

(2) Warning Signs.

(A) Warning signs shall be provided and displayed in regulated areas. In addition, warning signs shall be posted at all approaches to regulated areas so that an employee may read the signs and take necessary protective steps before entering the area.

(B) Warning signs required by subsection (m)(2)(A) shall bear the following information:

DANGER
CADMIUM
CANCER HAZARD
CAN CAUSE LUNG AND KIDNEY DISEASE
AUTHORIZED PERSONNEL ONLY
RESPIRATORS REQUIRED IN THIS AREA

(C) The employer shall assure that signs required by this subsection are illuminated, cleaned, and maintained as necessary so that the legend is readily visible.

(3) Warning Labels.

(A) Shipping and storage containers containing cadmium, cadmium compounds, or cadmium contaminated clothing, equipment, waste, scrap, or debris shall bear appropriate warning labels, as specified in subsection (m)(3)(B).

(B) The warning labels shall include at least the following information:

DANGER
CONTAINS CADMIUM
CANCER HAZARD
AVOID CREATING DUST
CAN CAUSE LUNG AND KIDNEY DISEASE

(C) Where feasible, installed cadmium products shall have a visible label or other indication that cadmium is present.

(4) Employee Information and Training.

(A) The employer shall institute a training program for all employees who are potentially exposed to cadmium, assure employee participation in the program, and maintain a record of the contents of such program.

(B) Training shall be provided prior to or at the time of initial assignment to a job involving potential exposure to cadmium and at least annually thereafter.

(C) The employer shall make the training program understandable to the employee and shall assure that each employee is informed of the following:

1. The health hazards associated with cadmium exposure, with special attention to the information incorporated in Appendix A;

2. The quantity, location, manner of use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in exposure to cadmium, especially exposures above the PEL;

3. The engineering controls and work practices associated with the employee's job assignment;

4. The measures employees can take to protect themselves from exposure to cadmium, including modification of such habits as smoking and personal hygiene, and specific procedures the employer has implemented to protect employees from exposure to cadmium such as appropriate work practices, emergency procedures, and the provision of personal protective equipment;

5. The purpose, proper selection, fitting, proper use, and limitations of respirators and protective clothing;

6. The purpose and a description of the medical surveillance program required by subsection (*l*);

7. The contents of this section and its appendices, and,

8. The employee's rights of access to records under section 3204(e) and (g).

(D) Additional access to information and training program and materials.

1. The employer shall make a copy of this section and its appendices readily available to all affected employees and shall provide a copy without cost if requested.

2. Upon request, the employer shall provide to the Chief or NIOSH all materials relating to the employee information and the training program.

(5) Multi–employer Workplace.

In a multi–employer workplace, an employer who produces, uses, or stores cadmium in a manner that may expose employees of other employers to cadmium shall notify those employers of the potential hazard in accordance with subsection (e) of the hazard communication standard, section 5194.

(n) Recordkeeping.

(1) Exposure Monitoring.

(A) The employer shall establish and keep an accurate record of all air monitoring for cadmium in the workplace.

(B) This record shall include at least the following information:

1. The monitoring date, shift, duration, air volume, and results in terms of an 8–hour TWA of each sample taken, and if cadmium is not detected, the detection level;

2. The name, social security number, and job classification of all employees monitored and of all other employees whose exposures the monitoring result is intended to represent, including, where applicable, a description of how it was determined that the employee's monitoring result could be taken to represent other employee's exposures;

3. A description of the sampling and analytical methods used and evidence of their accuracy;

4. The type of respiratory protective device, if any, worn by the monitored employee and by any other employee whose exposure the monitoring result is intended to represent;

5. A notation of any other conditions that might have affected the monitoring results.

6. Any exposure monitoring or objective data that were used and the levels.

(C) The employer shall maintain this record for at least thirty (30) years, in accordance with section 3204.

(D) The employer shall also provide a copy of the results of an employee's air monitoring prescribed in subsection (d) of this standard to an industry trade association and to the employee's union, if any, or, if either of such associations or unions do not exist, to another comparable organization that is competent to maintain such records and is reasonably accessible to employers and employees in the industry.

(2) Objective Data for Exemption from Requirement for Initial Monitoring.

(A) For purposes of this section, objective data are information demonstrating that a particular product or material containing cadmium or a specific process, operation, or activity involving cadmium cannot release

dust or fumes in concentrations at or above the action level even under the worst-case release conditions. Objective data can be obtained from an industry-wide study or from laboratory product test results from manufacturers of cadmium-containing products or materials. The data the employer uses from an industry-wide survey must be obtained under workplace conditions closely resembling the processes, types of material, control methods, work practices and environmental conditions in the employer's current operations.

(B) The employer shall maintain the record for at least 30 years of the objective data relied upon.

(3) Medical Surveillance.

(A) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under subsection (*l*)(1)(A).

(B) The record shall include at least the following information about the employee:

1. Name, social security number, and description of duties;

2. A copy of the physician's written opinions and of the explanation sheets for biological monitoring results;

3. A copy of the medical history, and the results of any physical examination and all test results that are required to be provided by this section, including biological tests, X-rays, pulmonary function tests, etc., or that have been obtained to further evaluate any condition that might be related to cadmium exposure;

4. The employee's medical symptoms that might be related to exposure to cadmium; and

5. A copy of the information provided to the physician as required by subsection (*l*)(9).

(C) The employer shall assure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with section 3204.

(D) At the employee's request, the employer shall promptly provide a copy of the employee's medical record, or update as appropriate, to a medical doctor or a union specified by the employee.

(4) Training.

The employer shall certify that employees have been trained by preparing a certification record which includes the identity of the person trained, the signature of the employer or the person who conducted the training, and the date the training was completed. The certification records shall be prepared at the completion of training and shall be maintained on file for one (1) year beyond the date of training of that employee.

(5) Availability.

(A) Except as otherwise provided for in this section, access to all records required to be maintained by subsections (n)(1)-(4) shall be in accordance with the provisions of section 3204.

(B) Within 15 days after a request, the employer shall make an employee's medical records required to be kept by subsection (n)(3) available for examination and copying to the subject employee, to designated representatives, to anyone having the specific written consent of the subject employee, and after the employee's death or incapacitation, to the employee's family members.

(6) Transfer of Records.

Whenever an employer ceases to do business and there is no successor employer or designated organization to receive and retain records for the prescribed period, the employer shall comply with the requirements concerning transfer of records set forth in section 3204 (h).

(o) Observation of Monitoring.

(1) Employee Observation.

The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to cadmium.

(2) Observation Procedures.

When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with that clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(p) Reporting requirements. See section 5203.

(q) Dates.

(1) Effective Date.

This section shall become effective on June 14, 1993.

(2) Start-up Dates.

All obligations of this section commence on the effective date except as follows:

(A) Exposure monitoring. Except for small businesses [nineteen (19) or fewer employees], initial monitoring required by subsection (d)(2) shall be completed as soon as possible and in any event no later than 60 days after the effective date of this standard. For small businesses, initial monitoring required by subsection (d)(2) shall be completed as soon as possible and in any event no later than 120 days after the effective date of this standard.

(B) The permissible exposure limit (PEL). Except for small businesses, as defined under subsection (q)(2)(A) above, the employer shall comply with the PEL established by subsection (c) as soon as possible and in any event no later than 90 days after the effective date. For small businesses, the employer shall comply with the PEL established by subsection (c) as soon as possible and in any event no later than 150 days after the effective date of this section.

(C) Regulated areas. Except for small businesses, as defined under subsection (q)(2)(A) above, regulated areas required to be established by subsection (e) shall be set up as soon as possible after the results of exposure monitoring are known and in any event no later than 90 days after the effective date of this section. For small businesses, regulated areas required to be established by subsection (e) shall be set up as soon as possible after the results of exposure monitoring are known and in any event no later than 150 days after the effective date of this section.

(D) Respiratory protection. Except for small businesses, as defined under subsection (q)(2)(A) above, respiratory protection required by subsection (g) shall be provided as soon as possible and in any event no later than 90 days after the effective date of this section. For small businesses, respiratory protection required by subsection (g) shall be provided as soon as possible and in any event no later than 150 days after the effective date of this section.

(E) Compliance program. Except for small businesses, as defined under subsection (q)(2)(A) above, written compliance programs required by subsection (f)(2) shall be completed and available as soon as possible and in any event no later than 90 days after the effective date of this section. For small businesses, written compliance programs required by subsection (f)(2) shall be completed and available as soon as possible and in any event no later than 180 days after the effective date of this section.

(F) Methods of compliance. Except for small businesses, as defined under subsection (q)(2)(A) above, the engineering controls required by subsection (f)(1) shall be implemented as soon as possible and in any event no later than 120 days after the effective date of this section. For small businesses, the engineering controls required by subsection (f)(1) shall be implemented as soon as possible and in any event no later than 240 days after the effective date of this section. Work practice controls shall be implemented as soon as possible. Work practice controls that are directly related to engineering controls to be implemented shall be implemented as soon as possible after such engineering controls are implemented.

(G) Hygiene and lunchroom facilities. Except for small businesses, as defined under subsection (q)(2)(A) above, handwashing facilities, showers, change rooms and eating facilities required by subsection (j), whether permanent or temporary, shall be provided as soon as possible and in any event no later than 60 days after the effective date of this section. For small businesses, handwashing facilities, showers, change rooms and eating facilities required by subsection (j), whether permanent or temporary, shall be provided as soon as possible and in any event no later than 120 days after the effective date of this section.

(H) Employee information and training. Except for small businesses, as defined under subsection (q)(2)(A) above, employee information and training required by subsection (m)(4) of this standard shall be provided as soon as possible and in any event no later than 90 days after the effective date of this standard. For small businesses, employee information and training required by subsection (m)(4) of this standard shall be provided as soon as possible and in any event no later than 180 days after the effective date of this standard.

(I) Medical surveillance. Except for small businesses, as defined under subsection (q)(2)(A) above, initial medical examinations required by subsection (*l*) of this standard shall be provided as soon as possible and in any event no later than 90 days after the effective date of this standard. For small businesses, initial medical examinations required by subsection (*l*) of this standard shall be provided as soon as possible and in any event no later than 180 days after the effective date of this standard.

(r) Appendices.

(1) Appendix C to this section is incorporated as part of this section, and compliance with its contents is mandatory.

(2) Except where portions of appendices A, B, D, E, and F to this section are expressly incorporated in requirements of this section, these appendices are purely informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

NOTE: Authority cited: Sections 142.3, 9020, 9030 and 9040, Labor Code. Reference: Sections 142.3, 9004(d), 9009, 9020, 9030, 9031 and 9040, Labor Code.

HISTORY

1. Repealer and new section filed 4-30-93; operative 6-14-93 (Register 93, No. 18). For prior history, see Register 84, No. 50.
2. Editorial correction of printing error in subsection (b) (Register 93, No. 22).
3. Change without regulatory effect, repealing appendices A–D and adding internal cross-references, and amending internal cross-references for appendices E–F, filed 9-30-96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 40).
4. Amendment of subsections (a)(6), (f)(5)(A), (g)(2)(A) (Table 1), (*l*)(1)(A)1., (*l*)(3)(A)2., (*l*)(4)(D)–(*l*)(4)(D)2., (*l*)(6)(D), (*l*)(8)(B) and (m)(4)(C)8. and amendment of NOTE filed 1-2-97; operative 1-2-97 pursuant to Government Code section 11343.4(d). Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 97, No. 1).
5. Amendment of former subsections (g)(1)–(g)(4)(E) including subsection renumbering and relettering resulting in newly designated subsections (g)(1)–(g)(3)(B)2., and amendment of editorial reference following appendix C heading filed 8-25-98; operative 11-23-98 (Register 98, No. 35).
6. Amendment of subsection (p) and repealer of subsections (p)(1)–(4) filed 7-6-99; operative 8-5-99 (Register 99, No. 28).
7. Amendment of subsection (g) and (g)(2)(A) filed 7-31-2003; operative 8-30-2003 (Register 2003, No. 31).
8. Amendment of subsections (g)(3)(A) and new subsections (g)(3)(C)–(D) filed 3-6-2007; operative 3-6-2007. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2007, No. 10).

## Appendix A

Substance Safety Data Sheet
Cadmium

Refer to section 5207, Appendix A.

## Appendix B

Substance Technical Guidelines for Cadmium

Refer to section 5207, Appendix B.

## Appendix C

Qualitative and Quantitative
Fit Testing Procedures

[See Section 5144, Appendix A]

## Appendix D

Occupational Health History Interview
With Reference to Cadmium Exposure

Refer to section 5207, Appendix D.

## Appendix E

CADMIUM IN WORKPLACE ATMOSPHERES

Refer to section 5207, Appendix E.

## Appendix F

NONMANDATORY PROTOCOL FOR BIOLOGICAL MONITORING

Refer to section 5207, Appendix F.

## § 1532.1. Lead.

(a) Scope. This section applies to all construction work where an employee may be occupationally exposed to lead. All construction work excluded from coverage in the general industry standard for lead by section 5198(a)(2) is covered by this standard. Construction work is defined as work for construction, alteration and/or repair, including painting and decorating. It includes but is not limited to the following:

(1) Demolition or salvage of structures where lead or materials containing lead are present;

(2) Removal or encapsulation of materials containing lead;

(3) New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead;

(4) Installation of products containing lead;

(5) Lead contamination/emergency cleanup;

(6) Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed, and

(7) Maintenance operations associated with the construction activities described in this subsection.

(b) Definitions.

Action level means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).

Chief means the Chief of the Division of Occupational Safety and Health or designee.

Lead means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

NIOSH means the National Institute of Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services or designee.

Supervisor means one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them. Supervisors shall be trained, as required by this section, and, when required, be certified consistent with section (*l*)(3).

(c) Permissible exposure limit.

(1) The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 $\mu g/m^3$) averaged over an 8-hour period.

(2) If an employee is exposed to lead for more than 8 hours in any work day the employees' allowable exposure, as a time weighted average (TWA) for that day, shall be reduced according to the following formula:

Allowable employee exposure (in $\mu g/m^3$)=400 divided by hours worked in the day.

(3) When respirators are used to limit employee exposure as required under subsection (c) and all the requirements of subsections (e)(1) and (f) have been met, employee exposure may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

(d) Exposure assessment.

(1) General.

(A) Each employer who has a workplace or operation covered by this standard shall initially determine if any employee may be exposed to lead at or above the action level.

(B) For the purposes of subsection (d), employee exposure is that exposure which would occur if the employee were not using a respirator.

(C) With the exception of monitoring under subsection (d)(3), where monitoring is required under this section, the employer shall collect personal samples representative of a full shift including at least one sample for each job classification in each work area either for each shift or for the shift with the highest exposure level.

(D) Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead.

(2) Protection of employees during assessment of exposure.

(A) With respect to the lead related tasks listed in subsection (d)(2)(A), where lead is present, until the employer performs an employee exposure assessment as required in subsection (d) and documents that the employee performing any of the listed tasks is not exposed above the PEL, the employer shall treat the employee as if the employee were exposed above the PEL, and not in excess of ten (10) times the PEL, and shall implement employee protective measures prescribed in subsection (d)(2)(E). The tasks covered by this requirement are:

1. Where lead containing coatings or paint are present: manual demolition of structures (e.g., dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems;

2. Spray painting with lead paint

(B) In addition, with regard to tasks not listed in subsection (d)(2)(A), where the employer has any reasons to believe that an employee performing the task may be exposed to lead in excess of the PEL, until the employer performs an employee exposure assessment as required by subsection (d) and documents that the employee's lead exposure is not above the PEL the employer shall treat the employee as if the employee were exposed above the PEL and shall implement employee protective measures as prescribed in subsection (d)(2)(E).

(C) With respect to the tasks listed in this subsection (d)(2)(C), where lead is present, until the employer performs an employee exposure assessment as required in subsection (d), and documents that the employee performing any of the listed tasks is not exposed in excess of 500 $\mu g/m^3$, the employer shall treat the employee as if the employee were exposed to lead in excess of 500 $\mu g/m^3$ and shall implement employee protective measures as prescribed in subsection (d)(2)(E). Where the employer does establish that the employee is exposed to levels of lead below 500 $\mu g/m^3$, the employer may provide the exposed employee with the appropriate respirator prescribed for such use at such lower exposures, in accordance with Table 1 of this section. The tasks covered by this requirement are:

1. Using lead containing mortar; lead burning

2. Where lead containing coatings or paint are present: rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal.

(D) With respect to the tasks listed in this subsection (d)(2)(D) of this section, where lead is present, until the employer performs an employee exposure assessment as required in subsection (d) and documents that the employee performing any of the listed tasks is not exposed to lead in excess of 2,500 $\mu g/m^3$ (50 x PEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 2,500 $\mu g/m^3$ and shall implement employee protective measures as prescribed in subsection (d)(2)(E). Where the employer does establish that the employee is exposed to levels of lead below 2,500 $\mu g/m^3$, the employer may provide the exposed employee with the appropriate respirator prescribed for use at such lower exposures, in accordance with Table I of this section. Interim protection as described in this subsection is required where lead containing coatings or paint are present on structures when performing:

1. Abrasive blasting,

2. Welding,

3. Cutting, and

4. Torch burning.

(E) Until the employer performs an employee exposure assessment as required under subsection (d) and determines actual employee exposure, the employer shall provide to employees performing the tasks described in subsections (d)(2)(A), (d)(2)(B), (d)(2)(C) and (d)(2)(D) with interim protection as follows:

1. Appropriate respiratory protection in accordance with subsection (f).

2. Appropriate personal protective clothing and equipment in accordance with subsection (g).

3. Change areas in accordance with subsection (i)(2).

4. Hand washing facilities in accordance with subsection (i)(5).

5. Biological monitoring in accordance with subsection (j)(1)(A), to consist of blood sampling and analysis for lead and zinc protoporphyrin levels, and

6. Training as required under subsection (*l*)(1)(A) regarding section 5194, Hazard Communication; training as required under subsection (*l*)(2)(C), regarding use of respirators; and training in accordance with section 1510, Safety Instruction for Employees.

(3) Basis of initial determination.

(A) Except as provided under subsections (d)(3)(C) and (d)(3)(D) the employer shall monitor employee exposures and shall base initial determinations on the employee exposure monitoring results and any of the following, relevant considerations:

1. Any information, observations, or calculations which would indicate employee exposure to lead;

2. Any previous measurements of airborne lead; and

3. Any employee complaints of symptoms which may be attributable to exposure to lead.

(B) Monitoring for the initial determination where performed may be limited to a representative sample of the exposed employees who the employer reasonably believes are exposed to the greatest airborne concentrations of lead in the workplace.

(C) Where the employer has previously monitored for lead exposures, and the data were obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the employer may rely on such earlier monitoring results to satisfy the requirements of subsections (d)(3)(A) and (d)(6) if the sampling and analytical methods meet the accuracy and confidence levels of subsection (d)(9).

(D) Where the employer has objective data, demonstrating that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure to lead at or above the action level during processing, use, or handling, the employer may rely upon such data instead of implementing initial monitoring.

1. The employer shall establish and maintain an accurate record documenting the nature and relevance of objective data as specified in subsection (n)(4), where used in assessing employee exposure in lieu of exposure monitoring.

2. Objective data, as described in subsection (d)(3)(D), is not permitted to be used for exposure assessment in connection with subsection (d)(2).

3. Objective data for surface coatings and materials that contain lead shall meet the following methodology:

a. Lead analysis shall be performed for each unique surface coating and material that may constitute a health hazard to employees engaged in activities within the scope of this section and;

b. Analysis of surface coatings and materials shall be performed in a manner that meets the requirements of subsection (d)(9) and shall be recorded, as described in subsection (n)(4),

(4) Positive initial determination and initial monitoring.

(A) Where a determination conducted under subsections (d)(1), (2) and (3) shows the possibility of any employee exposure at or above the action level the employer shall conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead.

(B) Where the employer has previously monitored for lead exposure, and the data were obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the pro-

cesses, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the employer may rely on such earlier monitoring results to satisfy the requirements of subsection (d)(4)(A) if the sampling and analytical methods meet the accuracy and confidence levels of subsection (d)(9).

(C) Objective data for an initial assessment that demonstrate surface coating or material that contain lead at concentrations equal to or exceeding 0.06% lead dry weight (600 ppm) demonstrate the presence of lead surface coatings or material that constitute a health hazard to employees engaged in lead-related construction work. The lead concentration of paint or materials is based on the lead content in the nonvolatile components of the surface coating or material such as paint. Objective data as described in this subsection are not permitted to be used in lieu of exposure assessment in connection with lead-related tasks listed in subsection (d)(2).

(5) Negative initial determination.

(A) Where a determination, conducted under subsections (d)(1), (2), and (3) is made that no employee is exposed to airborne concentrations of lead at or above the action level the employer shall make a written record of such determination. The record shall include at least the information specified in subsection (d)(3)(A) and shall also include the date of determination, location within the worksite, and the name and social security number of each employee monitored.

(B) Objective data that meet the requirements of subsection (n)(4) for an initial assessment that demonstrate surface coating or material that contain lead at concentrations less than 0.06% lead dry weight (600 ppm) are sufficient to establish a negative determination. The lead concentration of surface coatings or materials is based on the lead content in the nonvolatile components of the surface coating or material such as paint. Objective data as described in this subsection are not permitted to be used in lieu of exposure assessment in connection with lead-related tasks listed in subsection (d)(2).

(6) Frequency.

(A) If the initial determination reveals employee exposure to be below the action level further exposure determination need not be repeated except as otherwise provided in subsection (d)(7).

(B) If the initial determination or subsequent determination reveals employee exposure to be at or above the action level but at or below the PEL the employer shall perform monitoring in accordance with this subsection at least every 6 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in subsection (d)(7).

(C) If the initial determination reveals that employee exposure is above the PEL the employer shall perform monitoring quarterly. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are at or below the PEL but at or above the action level at which time the employer shall repeat monitoring for that employee at the frequency specified in subsection (d)(6)(B), except as otherwise provided in subsection (d)(7). The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in subsection (d)(7).

(7) Additional exposure assessments. Whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level or may result in employees already exposed at or above the action level being exposed above the PEL, the employer shall conduct additional monitoring in accordance with this subsection.

(8) Employee notification.

(A) Within 5 working days after completion of the exposure assessment the employer shall notify each employee in writing of the results which represent that employee's exposure.

(B) Whenever the results indicate that the representative employee exposure, without regard to respirators, is at or above the PEL the employer shall include in the written notice a statement that the employees exposure was at or above that level and a description of the corrective action taken or to be taken to reduce exposure to below that level.

(9) "Accuracy of measurement". The employer shall use a method of monitoring and analysis which has an accuracy (to a confidence level of 95%) of not less than plus or minus 25 percent for airborne concentrations of lead equal to or greater than 30 $\mu g/m^3$. Methods for the determination of lead concentrations of surface coatings and material shall be determined by methods which have an accuracy (to a confidence level of 95 percent) of not less than plus or minus 25 percent at 0.06% lead dry weight (600 ppm).

(e) Methods of compliance

(1) Engineering and work practice controls.

(A) General. The employer shall implement engineering and work practice controls, including administrative controls, to reduce and maintain employee exposure to lead to or below the permissible exposure limit to the extent that such controls are feasible. Wherever all feasible engineering and work practices controls that can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit prescribed in subsection (c), the employer shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them by the use of respiratory protection that complies with the requirements of subsection (f).

(2) Compliance program.

(A) Prior to commencement of the job each employer shall establish and implement a written compliance program to achieve compliance with subsection (c).

(B) Written plans for these compliance programs shall include at least the following:

1. A description of each activity in which lead is emitted; e.g. equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices;

2. A description of the specific means that will be employed to achieve compliance and, where engineering controls are required engineering plans and studies used to determine methods selected for controlling exposure to lead;

3. A report of the technology considered in meeting the PEL;

4. Air monitoring data which documents the source of lead emissions;

5. A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.;

6. A work practice program which includes items required under subsections (g), (h) and (i) and incorporates other relevant work practices such as those specified in subsection (e)(5);

7. An administrative control schedule required by subsection (e)(4), if applicable;

8. A description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead and of regulated areas.

9. Other relevant information.

(C) The compliance program shall provide for frequent and regular inspections of job sites, regulated areas, materials, and equipment to be made by a supervisor.

(D) Written programs shall be submitted upon request to any affected employee or authorized employee representatives, to the Chief and NIOSH, and shall be available at the worksite for examination and copying by the Chief and NIOSH.

(E) Written programs shall be revised and updated at least every 6 months to reflect the current status of the program.

(3) Mechanical ventilation. When ventilation is used to control lead exposure, the employer shall evaluate the mechanical performance of the system in controlling exposure as necessary to maintain its effectiveness.

(4) Administrative controls. If administrative controls are used as a means of reducing employees TWA exposure to lead, the employer shall establish and implement a job rotation schedule which includes:

(A) Name or identification number of each affected employee;

(B) Duration and exposure levels at each job or work station where each affected employee is located; and

(C) Any other information which may be useful in assessing the reliability of administrative controls to reduce exposure to lead.

(5) The employer shall ensure that, to the extent relevant, employees follow good work practices such as described in Appendix B of this section.

(f) Respiratory protection.

(1) General. For employees who use respirators required by this section, the employer must provide respirators that comply with the requirements of this subsection. Respirators must be used during:

(A) Periods when an employee's exposure to lead exceeds the PEL;

(B) Work operations for which engineering controls and work practices are not sufficient to reduce exposures to or below the PEL;

(C) Periods when an employee requests a respirator; and

(D) Periods when respirators are required to provide interim protection for employees while they perform the operations specified in subsection (d)(2).

(2) Respirator program.

(A) An employer must implement a respiratory protection program in accordance with section 5144(b) (except (d)(1)(C)) through (m).

(B) If an employee exhibits breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination in accordance with subsection (j)(3)(A)2. to determine if the employee can use a respirator while performing the required duties.

(3) Respirator selection.

(A) The employer shall select, and provide to employees, the appropriate respirator or combination of respirators specified in Section 5144(d)(3)(A)1.

(B) The employer shall provide a powered, air–purifying respirator in lieu of the respirator specified in Section 5144(d)(3)(A)1 whenever:

1. An employee chooses to use this type of respirator; and

2. This respirator will provide adequate protection to the employee.

(C) The employer shall provide employees with a full facepiece respirator instead of a half mask respirator for protection against lead aerosols that may cause eye or skin irritation at the use concentrations.

(D) The employer shall provide HEPA filters for powered and non–powered air–purifying respirators.

(g) Protective work clothing and equipment.

(1) Provision and use. Where an employee is exposed to lead above the PEL without regard to the use of respirators, where employees are exposed to lead compounds which may cause skin or eye irritation (e.g. lead arsenate, lead azide), and as interim protection for employees performing tasks as specified in subsection (d)(2), the employer shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments such as, but not limited to:

(A) Coveralls or similar full–body work clothing;

(B) Gloves, hats, and shoes or disposable shoe coverlets; and

(C) Face shields, vented goggles, or other appropriate protective equipment which complies with section 1516.

(2) Cleaning and replacement.

(A) The employer shall provide the protective clothing required in subsection (g)(1) in a clean and dry condition at least weekly, and daily to employees whose exposure levels without regard to a respirator are over 200 $\mu g/m^3$ of lead as an 8–hour TWA.

(B) The employer shall provide for the cleaning, laundering, and disposal of protective clothing and equipment required by subsection (g)(1).

(C) The employer shall repair or replace required protective clothing and equipment as needed to maintain their effectiveness.

(D) The employer shall assure that all protective clothing is removed at the completion of a work shift only in change areas provided for that purpose as prescribed in subsection (i)(2).

(E) The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area which prevents dispersion of lead outside the container.

(F) The employer shall inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

(G) The employer shall assure that the containers of contaminated protective clothing and equipment required by subsection (g)(2)(E) are labelled as follows:

Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations.

(H) The employer shall prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means which disperses lead into the air.

(h) Housekeeping.

(1) All surfaces shall be maintained as free as practicable of accumulations of lead.

(2) Clean–up of floors and other surfaces where lead accumulates shall wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.

(3) Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.

(4) Where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.

(5) Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.

(i) Hygiene facilities, practices and regulated areas.

(1) The employer shall assure that in areas where employees are exposed to lead above the PEL without regard to the use of respirators, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied.

(2) Change areas.

(A) The employer shall provide clean change areas for employees whose airborne exposure to lead is above the PEL, and as interim protection for employees performing tasks as specified in subsection (d)(2), without regard to the use of respirators.

(B) The employers shall assure that change areas are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross–contamination.

(C) The employer shall assure that employees do not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.

(3) Showers.

(A) The employer shall provide shower facilities, where feasible, for use by employees whose airborne exposure to lead is above the PEL.

(B) The employer shall assure, where shower facilities are available, that employees shower at the end of the work shift and shall provide an adequate supply of cleansing agents and towels for use by affected employees.

(4) Eating facilities.

(A) The employer shall provide lunchroom facilities or eating areas for employees whose airborne exposure to lead is above the PEL, without regard to the use of respirators.

(B) The employer shall assure that lunchroom facilities or eating areas are as free as practicable from lead contamination and are readily accessible to employees.

(C) The employer shall assure that employees whose airborne exposure to lead is above the PEL, without regard to the use of a respirator, wash their hands and face prior to eating, drinking, smoking or applying cosmetics.

(D) The employer shall assure that employees do not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, downdraft booth, or other cleaning method that limits dispersion of lead dust.

(5) Hand Washing facilities.

(A) The employer shall provide adequate handwashing facilities for use by employees exposed to lead in accordance with section 1527.

(B) Where showers are not provided the employer shall assure that employees wash their hands and face at the end of the work-shift.

(6) Regulated Area.

(A) Employers shall establish regulated areas, where feasible, for work areas where employees are exposed to lead at or above the PEL or performing the tasks described in subsection (d)(2).

(B) Regulated areas shall be posted with signs as described in subsection (m)(2).

(C) Employers shall restrict access to the regulated area to employees authorized by the supervisor, to representatives of affected employees, as described in subsection (o) and to persons authorized by the Chief or NIOSH.

(D) Each employee authorized to enter the regulated area shall be provided with and be required to wear protective equipment required by subsections (f) and (g).

(j) Medical surveillance.

(1) General.

(A) The employer shall make available initial medical surveillance to employees occupationally exposed on any day to lead at or above the action level. Initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels.

(B) The employer shall institute a medical surveillance program in accordance with subsections (j)(2) and (j)(3) for all employees who are or may be exposed by the employer at or above the action level for more than 30 days in any consecutive 12 months;

(C) The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.

(D) The employer shall make available the required medical surveillance including multiple physician review under subsection (j)(3)(C) without cost to employees and at a reasonable time and place.

(2) Biological monitoring.

(A) Blood lead and ZPP level sampling and analysis. The employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee covered under subsections (j)(1)(A) and (B) on the following schedule:

1. For each employee covered under subsection (j)(1)(B), at least every 2 months for the first 6 months and every 6 months thereafter;

2. For each employee covered under subsections (j)(1)(A) or (B) whose last blood sampling and analysis indicated a blood lead level at or above 40 µg/dl, at least every two months. This frequency shall continue until two consecutive blood samples and analyses indicate a blood lead level below 40 µg/dl; and

3. For each employee who is removed from exposure to lead due to an elevated blood lead level at least monthly during the removal period.

(B) Follow-up blood sampling tests. Whenever the results of a blood lead level test indicate that an employee's blood lead level exceeds the numerical criterion for medical removal under subsection (k)(1)(A), the employer shall provide a second (follow-up) blood sampling test within two weeks after the employer receives the results of the first blood sampling test.

(C) Accuracy of blood lead level sampling and analysis. Blood lead level sampling and analysis provided pursuant to this section shall have an accuracy (to a confidence level of 95 percent) within plus or minus 15 percent or 6 µg/dl, whichever is greater, and shall be conducted by a laboratory approved by OSHA.

(D) Employee notification.

1. Within five working days after the receipt of biological monitoring results, the employer shall notify each employee in writing of his or her blood lead level; and

2. the employer shall notify each employee whose blood lead level exceeds 40 µg/dl that the standard requires temporary medical removal with Medical Removal Protection benefits when an employee's blood lead level exceeds the numerical criterion for medical removal under subsection (k)(1)(A).

(3) Medical examinations and consultations.

(A) Frequency. The employer shall make available medical examinations and consultations to each employee covered under subsection (j)(1)(B) on the following schedule:

1. At least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 µg/dl;

2. As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child, that the employee is pregnant, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during use; and

3. As medically appropriate for each employee either removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination.

(B) Content. The content of medical examinations made available pursuant to subsection (j)(3)(A)2. - 3. shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility. Medical examinations made available pursuant to subsection (j)(3)(A)1. shall include the following elements:

1. A detailed work history and a medical history, with particular attention to past lead exposure (occupational and non-occupational), personal habits (smoking, hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive and neurological problems;

2. A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. Pulmonary status should be evaluated if respiratory protection will be used;

3. A blood pressure measurement;

4. A blood sample and analysis which determines:

a. Blood lead level;

b. Hemoglobin and hematocrit determinations, red cell indices, and examination of peripheral smear morphology;

c. Zinc protoporphyrin;

d. Blood urea nitrogen; and,

e. Serum creatinine;

5. A routine urinalysis with microscopic examination; and

6. Any laboratory or other test relevant to lead exposure which the examining physician deems necessary by sound medical practice.

(C) Multiple physician review mechanism.

1. If the employer selects the initial physician who conducts any medical examination or consultation provided to an employee under this section, the employee may designate a second physician:

a. To review any findings, determinations or recommendations of the initial physician; and

b. To conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

2. The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician

conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician's written opinion, whichever is later:

a. The employee informing the employer that he or she intends to seek a second medical opinion, and

b. The employee initiating steps to make an appointment with a second physician.

3. If the findings, determinations or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

4. If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee through their respective physicians shall designate a third physician:

a. To review any findings, determinations or recommendations of the prior physicians; and

b. To conduct such examinations, consultations, laboratory tests and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians.

5. The employer shall act consistent with the findings, determinations and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians.

(D) Information provided to examining and consulting physicians.

1. The employer shall provide an initial physician conducting a medical examination or consultation under this section with the following information:

a. A copy of this regulation for lead including all Appendices;

b. A description of the affected employee's duties as they relate to the employee's exposure;

c. The employee's exposure level or anticipated exposure level to lead and to any other toxic substance (if applicable);

d. A description of any personal protective equipment used or to be used;

e. Prior blood lead determinations; and

f. All prior written medical opinions concerning the employee in the employer's possession or control.

2. The employer shall provide the foregoing information to a second or third physician conducting a medical examination or consultation under this section upon request either by the second or third physician, or by the employee.

(E) Written medical opinions.

1. The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains only the following information:

a. The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead;

b. Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;

c. Any recommended limitations upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if an physician determines that the employee cannot wear a negative pressure respirator; and

d. The results of the blood lead determinations.

2. The employer shall instruct each examining and consulting physician to:

a. Not reveal either in the written opinion or orally, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead; and

b. Advise the employee of any medical condition, occupational or nonoccupational, which dictates further medical examination or treatment.

(F) Alternate physician determination mechanisms. The employer and an employee or authorized employee representative may agree upon the use of any alternate physician determination mechanism in lieu of the multiple physician review mechanism provided by subsection (j)(3)(C) so long as the alternate mechanism is as expeditious and protective as the requirements contained in this subsection.

(4) Chelation.

(A) The employer shall assure that any person whom he/she retains, employs, supervises or controls does not engage in prophylactic chelation of any employee at any time.

(B) If therapeutic or diagnostic chelation is to be performed by any person in subsection (j)(4)(A), the employer shall assure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.

(k) Medical removal protection.

(1) Temporary medical removal and return of an employee.

(A) Temporary removal due to elevated blood lead level. The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to this section indicate that the employee's blood lead level is at or above 50 µg/dl; and,

(B) Temporary removal due to a final medical determination.

1. The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

2. For the purposes of this section, the phrase "final medical determination" means the written medical opinion on the employees' health status by the examining physician or, where relevant, the outcome of the multiple physician review mechanism or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section.

3. Where a final medical determination results in any recommended special protective measures for an employee, or limitations on an employee's exposure to lead, the employer shall implement and act consistent with the recommendation.

(C) Return of the employee to former job status. 1. The employer shall return an employee to his or her former job status:

a. For an employee removed due to a blood lead level at or above 50 µg/dl when two consecutive blood sampling tests indicate that the employee's blood lead level is at or below 40 µg/dl;

b. For an employee removed due to a final medical determination, when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

2. For the purposes of this section, the requirement that an employer return an employee to his or her former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement.

(D) Removal of other employee special protective measure or limitations. The employer shall remove any limitations placed on an employee or end any special protective measures provided to an employee pursuant to a final medical determination when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary.

(E) Employer options pending a final medical determination. Where the multiple physician review mechanism, or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:

1. Removal. The employer may remove the employee from exposure to lead, provide special protective measures to the employee, or place limitations upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status.

2. Return. The employer may return the employee to his or her former job status, end any special protective measures provided to the employee, and remove any limitations placed upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions. If:

a. the initial removal, special protection, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician or;

b. If the employee has been on removal status for the preceding eighteen months due to an elevated blood lead level, then the employer shall await a final medical determination.

(2) Medical removal protection benefits.

(A) Provision of medical removal protection benefits. The employer shall provide an employee up to eighteen (18) months of medical removal protection benefits on each occasion that an employee is removed from exposure to lead or otherwise limited pursuant to this section.

(B) Definition of medical removal protection benefits. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that, as long as the job the employee was removed from continues, the employer shall maintain the total normal earnings, seniority and other employment rights and benefits of an employee, including the employee's right to his or her former job status as though the employee had not been medically removed from the employee's job or otherwise medically limited.

(C) Follow–up medical surveillance during the period of employee removal or limitation. During the period of time that an employee is medically removed from his or her job or otherwise medically limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow–up medical surveillance made available pursuant to this section.

(D) Workers' compensation claims. If a removed employee files a claim for workers' compensation payments for a lead–related disability, then the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by such amount. The employer shall receive no credit for workers' compensation payments received by the employee for treatment–related expenses.

(E) Other credits. The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer–funded compensation program, or receives income from employment with another employer made possible by virtue of the employee's removal.

(F) Voluntary removal or restriction of an employee. Where an employer, although not required by this section to do so, removes an employee from exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by subsection (k)(2)(A) and (B).

*(l)* Employee information, training and certification.

(1) General.

(A) The employer shall communicate information concerning lead hazards according to the requirements of the Hazard Communication Standard, section 5194, including but not limited to the requirements concerning warning signs and labels, material safety data sheets (MSDS), and employee information and training.

(B) For all employees who are subject to exposure to lead at or above the action level on any day or who are subject to exposure to lead compounds which may cause skin or eye irritation (e.g. lead arsenate, lead azide), the employer shall provide a training program in accordance with subsection *(l)*(2) and assure employee participation.

(C) The employer shall provide the training program as initial training prior to the time of job assignment or prior to the start up date for this requirement, whichever comes last.

(D) The employer shall also provide the training program at least annually for each employee who is subject to lead exposure at or above the action level on any day.

(E) Where the certification of employee and supervisor training is required, as described in subsection *(l)*(3), the training shall be conducted by a training provider accredited by the California Department of Health Services, in accordance with Title 17, California Code of Regulations, Division 1, Chapter 8.

(2) Training program.

The employer shall assure that each employee is trained in the following:

(A) The content of this standard and its appendices;

(B) The specific nature of the operations which could result in exposure to lead above the action level;

(C) The purpose, proper selection, fitting, use, and limitations of respirators;

(D) The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant);

(E) The engineering controls and work practices associated with the employee's job assignment including training of employees to follow relevant good work practices described in Appendix B of this section;

(F) The contents of any compliance plan and the location of regulated areas in effect;

(G) Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician; and

(H) The employee's right of access to records under section 3204.

(3) Certification of training for residential and public buildings.

The employer shall ensure that all employees and supervisors who are engaged in lead related construction work as defined in Title 17, California Code of Regulations, Section 35040, and have been shown to be exposed to lead at or above the permissible exposure limit, meet the training requirements of this section, are trained by an accredited training provider and are certified by the California Department of Health Services. Lead related construction work is defined in Title 17 to be any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup, that, by using or disturbing lead containing material or soil, may result in significant exposure of adults or children to lead. As used in the definition of lead related construction work, "public building" means a structure which is generally accessible to the public, including but not limited to, schools, daycare centers, museums, airports, hospitals, stores, convention centers, government facilities, office buildings and any other building which is not an industrial building or a residential building. Regulations for accreditation of training providers and for the certification of employees and supervisors are found in Title 17, California Code of Regulations, Division 1, Chapter 8.

(4) Access to information, training and certification materials.

(A) The employer shall make readily available to all affected employees a copy of this standard and its appendices.

(B) The employer shall provide, upon request, all materials relating to the employee information training program and certification to affected employees, their designated representatives, the Chief and NIOSH.

(m) Signs.

(1) General.

(A) The employer may use signs required by other statutes, regulations or ordinances in addition to, or in combination with, signs required by this subsection.

(B) The employer shall assure that no statement appears on or near any sign required by this subsection which contradicts or detracts from the meaning of the required sign.

(2) Signs.

(A) The employer shall post the following warning signs in each regulated area or work area where an employees exposure to lead is above the PEL.

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

(B) The employer shall assure that signs required by this subsection are illuminated and cleaned as necessary so that the legend is readily visible.

(n) Recordkeeping.

(1) Exposure assessment.

(A) The employer shall establish and maintain an accurate record of all monitoring and other data used in conducting employee exposure assessments as required in subsection (d).

(B) Exposure monitoring records shall include:

1. The date(s), number, duration, location and results of each of the samples taken if any, including a description of the sampling procedure used to determine representative employee exposure where applicable;

2. A description of the sampling and analytical methods used and evidence of their accuracy;

3. The type of respiratory protective devices worn, if any;

4. Name, social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and

5. The environmental variables that could affect the measurement of employee exposure.

(C) The employer shall maintain monitoring and other exposure assessment records in accordance with the provisions of section 3204.

(2) Medical surveillance.

(A) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by subsection (j).

(B) This record shall include:

1. The name, social security number, and description of the duties of the employee;

2. A copy of the physician's written opinions;

3. Results of any airborne exposure monitoring done on or for that employee and provided to the physician; and

4. Any employee medical complaints related to exposure to lead.

(C) The employer shall keep, or assure that the examining physician keeps, the following medical records:

1. A copy of the medical examination results including medical and work history required under subsection (j);

2. A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results or references to that information;

3. A copy of the results of biological monitoring.

(D) The employer shall maintain or assure that the physician maintains medical records in accordance with the provisions of section 3204.

(3) Medical removals.

(A) The employer shall establish and maintain an accurate record for each employee removed from current exposure to lead pursuant to subsection (k).

(B) Each record shall include:

1. The name and social security number of the employee;

2. The date of each occasion that the employee was removed from current exposure to lead as well as the corresponding date on which the employee was returned to his or her former job status;

3. A brief explanation of how each removal was or is being accomplished; and

4. A statement with respect to each removal indicating whether or not the reason for the removal was an elevated blood lead level.

(C) The employer shall maintain each medical removal record for at least the duration of an employee's employment.

(4) "Objective data for exemption from requirement for initial monitoring".

(A) For purposes of this section, objective data are information demonstrating that a particular product or material containing lead or a specific process, operation, or activity involving lead cannot release dust or fumes in concentrations at or above the action level under any expected conditions of use. Objective data can be obtained from any industry-wide study or from laboratory product test results from manufacturers of lead containing products, including surface coatings or other materials. The data the employer uses from an industry-wide survey must be obtained under workplace conditions closely resembling the processes, types of material, control methods, work practices and environmental conditions in the employer's current operations.

(B) The employer shall maintain the record of the objective data relied upon for at least 30 years.

(5) Availability. The employer shall make available upon request all records required to be maintained by subsection (n) to affected employees, former employees, and their designated representatives, and to the Chief and NIOSH for examination and copying.

(6) Transfer of records.

(A) Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by subsection (n).

(B) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records required to be maintained by this section for the prescribed period, these records shall be transmitted to NIOSH.

(C) At the expiration of the retention period for the records required to be maintained by this section, the employer shall notify NIOSH at least 3 months prior to the disposal of such records and shall transmit those records to NIOSH if requested within the period.

(D) The employer shall also comply with any additional requirements involving transfer of records set forth in section 3204(h).

(o) Observation of monitoring.

(1) Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to lead conducted pursuant to subsection (d).

(2) Observation procedures.

(A) Whenever observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing or equipment is required, the employer shall provide the observer with and assure the use of such respirators, clothing and equipment, and shall require the observer to comply with all other applicable safety and health procedures.

(B) Without interfering with the monitoring, observers shall be entitled to:

1. Receive an explanation of the measurement procedures;

2. Observe all steps related to the monitoring of lead performed at the place of exposure; and

3. Record the results obtained or receive copies of the results when returned by the laboratory.

(p) Lead–Work Pre–Job Notification. The employer shall provide written notification to the nearest Division District Office in the manner prescribed by subsections (p)(1) through (p)(4) when work is planned that includes any of the tasks listed in subsection (d)(2).

EXCEPTION NO. 1: The employer is not required to notify the Division if:

A. The amount of lead–containing materials to be disturbed is less than 100 square or 100 linear feet; or

B. The only subsection (d)(2) task to be performed consists of torch cutting or welding, not to exceed a duration of 1 hour in any shift.

EXCEPTION NO. 2: The employer is not required to notify the Division if the percentage of lead in the material disturbed is less than 0.5%, 5,000 parts per million (weight by weight), or 1.0 mg/cm$^2$.

(1) The employer shall ensure that the information required by subsection (p)(2) is received by the nearest Division District Office at least 24 hours prior to the commencement of the work by any of the following means:

(A) Letter;

(B) Facsimile;

(C) Electronic mail; or

(D) Telephone call, followed by written notification sent or mailed within 24 hours of placing the call.

EXCEPTION: When an employer intends to initiate unforeseen lead–work on an urgent basis within 24 hours, the notification requirement may be met by giving telephone notice to the Division at any time prior to commencement of the work, followed by written notification sent or mailed within 24 hours of telephoning the Division.

(2) The written notification provided by the employer shall contain the following:

(A) The name, address and phone number of the employer;

(B) The address of the job (or common name of the site with closest streets or roadways identified);

(C) The precise physical location of the lead related work at the job site;

(D) The projected starting date;

(E) The expected completion date or approximate duration of the work in days;

(F) The approximate number of workers planned to do the lead–related work;

(G) The type of structure(s) in which or on which the work is to be performed;

(H) The amount of lead containing material to be disturbed in square feet or linear feet;

(I) A description of the type of lead–related work to be performed and work practices that will be utilized;

(J) The name of the supervisor who will be responsible for the lead–related work; and

(K) The amount of lead in the disturbed materials (percent by weight, parts per million or milligrams per square centimeter) if known.

(3) The employer shall notify the Division, and provide the current information, if changes are made to the starting date, the surface area to be disturbed, or the type of lead–related work performed or work practices to be utilized, before or upon adoption of that change.

(4) An employer conducting ongoing, lead–related operations and maintenance work on stationary steel structures need only notify the Division once for each structure if the duration of the operations and maintenance work is less than one year. If the duration of the work is more than one year, the employer shall submit to the Division at least once per year a supplemental written notification updating all of the information required by subsection (p)(2) for each structure.

(q) Appendices. The information contained in the appendices to this section is not intended by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

NOTE: Authority cited: Sections 142.3 and 6717, Labor Code. Reference: Sections 142.3 and 6717, Labor Code.

HISTORY

1. New section filed 9–28–93; operative 11–4–93 pursuant to Labor Code section 142.3(a)(4) (Register 93, No. 40). This section is identical to the interim final rule adopted by the federal Occupational Safety and Health Administration on 5–4–93 and is exempt from OAL review. Pursuant to Labor Code section 142.3(a)(4)(c), this section shall remain in effect until 5–4–94 unless readopted for an additional 6 months or superceded by permanent regulations.
2. Change without regulatory effect amending opening paragraph filed 10–18–93 pursuant to title 1, section 100, California Code of Regulations (Register 93, No. 43).
3. New section refiled 4–28–94 with amendments; operative 5–4–94 pursuant to Labor Code section 142.3(a)(4) (Register 94, No. 17). This section is identical to the interim final rule adopted by the Federal Occupational Safety and Health Administration on 5–4–93 and is exempt from OAL review. Pursuant to Labor Code section 142.3(a)(4)(C), this section shall remain in effect for six months unless superseded by permanent regulations.
4. Amendment of section and amendment of Appendices headings and text filed 10–19–94; operative 10–19–94. Submitted to OAL for printing only pursuant to Labor Code section 142(a)(3) (Register 94, No. 42).
5. Change without regulatory effect amending Appendix A heading filed 2–16–95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 7).
6. Editorial correction of subsection (d)(2)(E)5. (Register 95, No. 36).
7. Amendment of section, Appendix B and NOTE filed 2–5–97; operative 3–7–97 (Register 97, No. 6).
8. Amendment of former subsections (f)(1)–(f)(4)(C) including subsection renumbering and relettering resulting in newly designated subsections (f)(1)–(f)(3)(B)2., amendment of Appendix B, subsection IV, and amendment repealing appendix D and adding editorial reference filed 8–25–98; operative 11–23–98 (Register 98, No. 35).
9. Change without regulatory effect amending subsection (a) filed 2–16–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2000, No. 7).
10. Amendment of subsection (f)(3)(B)2. (Table I) filed 5–24–2000; operative 6–23–2000 (Register 2000, No. 21).
11. Repealer of subsection (p) and new subsections (p)–(p)(4) filed 12–26–2001; operative 1–25–2002 (Register 2001, No. 52).
12. Change without regulatory effect amending subsection (*l*)(3) filed 7–24–2003 pursuant to section 100, title 1, California Code of Regulations (Register 2003, No. 30).
13. Amendment of subsection (f)(2)(A) filed 7–31–2003; operative 8–30–2003 (Register 2003, No. 31).
14. Editorial correction of subsection (p)(1)(B) designator (Register 2006, No. 29).
15. Amendment of subsections (f)(3)(A)–(B) and (f)(3)(B)2. and new subsections (f)(3)(C)–(D) filed 3–6–2007; operative 3–6–2007. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2007, No. 10).
16. Change without regulatory effect amending subsection (g)(2)(D) filed 8–8–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

## Appendix A to § 1532.1 — Substance Data Sheet for Occupational Exposure to Lead

I. Substance Identification

A. Substance: Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.

B. Compounds covered by the standard: The word "lead" when used in this standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.

C. Uses: Exposure to lead occurs in several different occupations in the construction industry, including demolition or salvage of structures where lead or lead–containing materials are present; removal or encapsulation of lead–containing materials, new construction, alteration, repair, or renovation of structures that contain lead or materials containing lead; installation of products containing lead. In addition, there are construction related activities where exposure to lead may occur, including transportation, disposal, storage, or containment of lead or materials containing lead on construction sites, and maintenance operations associated with construction activities.

D. Permissible exposure: The permissible exposure limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air (50 $\mu g/m^3$) averaged over an 8–hour workday.

E. Action level: The standard establishes an action level of 30 micrograms of lead per cubic meter of air (30 $\mu g/m^3$) averaged over an 8–hour workday. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, and training.

II. Health Hazard Data

A. Ways in which lead enters your body. When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume or mist it can be inhaled and absorbed through your lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco,

or make–up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.

B. Effects of overexposure to lead.

(1) Short term (acute) overexposure. Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

(2) Long–term (chronic) overexposure. Chronic overexposure to lead may result in severe damage to your blood–forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two–thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood–forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(3) Health protection goals of the standard. Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 µg/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 µg/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 µg) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg% or µg%. This is a shorthand notation for 100g, 100 ml, or dl. (Reference to BLL measurements in this standard are expressed in the form of µg/dl.)

BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead–related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead–related health impairment or disease.

Once your blood lead level climbs about 40 µg/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 µg/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 µg/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead–related impairments and diseases — both short term and long term — is to maintain your BLL below 40 µg/dl. The provisions of the standard are designed with this end in mind.

Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You, as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his or her actions.

(4) Reporting signs and symptoms of health problems. You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead or your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases, your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place. The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if your employer selected the initial physician.

## Appendix B to § 1532.1 — Employee Standard Summary

This appendix summarizes key provisions of the standard for lead in construction that you as a worker should become familiar with.

I. Permissible Exposure Limit (PEL) – subsection (c)

The standard sets a permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air (50 $\mu g/m^3$), averaged over an 8–hour workday which is referred to as a time–weighted average (TWA). This is the highest level of lead in air to which you may be permissibly exposed over an 8–hour workday. However, since this is an 8–hour average, short exposures above the PEL are permitted so long as for each 8–hour work day your average exposure does not exceed this level. This standard, however, takes into account the fact that your daily exposure to lead can extend beyond a typical 8–hour workday as the result of overtime or other alterations in your work schedule. To deal with this situation, the standard contains a formula which reduces your permissible exposure when you are exposed more than 8 hours. For example, if you are exposed to lead for 10 hours a day, the maximum permitted average exposure would be 40 $\mu g/m^3$.

II. Exposure Assessment – Subsection (d)

If lead is present in your workplace in any quantity, your employer is required to make an initial determination of whether any employee's exposure to lead exceeds the action level (30 $\mu g/m^3$ averaged over an 8–hour day). Employee exposure is that exposure which would occur if the employee were not using a respirator. This initial determination requires your employer to monitor workers' exposures unless he or she has objective data which can demonstrate conclusively that no employee will be exposed to lead in excess of the action level. Where objective data is used in lieu of actual monitoring the employer must establish and maintain an accurate record, documenting its relevancy in assessing exposure levels for current job conditions. If such objective data is available, the employer need proceed no further on employee exposure assessment until such time that conditions have changed and the determination is no longer valid. Objective data for surfaces and materials that is less than 0.06% lead dry weight (600 ppm) is indicative of materials that will not give lead concentrations above the action level. Lead analysis must be performed for each unique surface coating or material. Surface coating or material objective data cannot be used to replace air monitoring for exposure assessments required for the lead–related tasks listed in subsection (d)(2). Objective data may be compiled from various sources, e.g., insurance companies and trade associations and information from suppliers or exposure data collected from similar operations. Objective data may also comprise previously–collected sampling data including area monitoring. If it cannot be determined through using objective data that worker exposure is less than the action level, your employer must conduct monitoring or must rely on relevant previous personal sampling, if available. Where monitoring is required for the initial determination, it may be limited to a representative number of employees who are reasonably expected to have the highest exposure levels. If your employer has conducted appropriate air sampling for lead in the past 12 months, he or she may use these results, provided they are applicable to the same employee tasks and exposure conditions and meet the requirements for accuracy as specified in the standard. As with objective data, if such results are relied upon for the initial determination, your employer must establish and maintain a record as to the relevancy of such data to current job conditions.

If there have been any employee complaints of symptoms which may be attributable to exposure to lead or if there is any other information or observations which would indicate employee exposure to lead, this must also be considered as part of the initial determination.

If this initial determination shows that a reasonable possibility exists that any employee may be exposed, without regard to respirators, over the action level, your employer must set up an air monitoring program to determine the exposure level representative of each employee exposed to lead at your workplace. In carrying out this air monitoring program, your employer is not required to monitor the exposure of every employee, but he or she must monitor a representative number of employees and job types. Enough sampling must be done to enable each employee's exposure level to be reasonably represent full shift exposure. In addition, these air samples must be taken under conditions which represent each employee's regular, daily exposure to lead. Sampling performed in the past 12 months may be used to determine exposures above the action level if such sampling was conducted during work activities essentially similar to present work conditions.

The standard lists certain tasks which may likely result in exposures to lead in excess of the PEL and, in some cases, exposures in excess of 50 times the PEL. If you are performing any of these tasks, your employer must provide you with appropriate respiratory protection, protective clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until such time that an exposure assessment is conducted which demonstrates that your exposure level is below the PEL. Objective data cannot be used to replace air monitoring for this exposure assessment.

If you are exposed to lead and air sampling is performed, your employer is required to notify you in writing within 5 working days of the air monitoring results which represent your exposure. If the results indicate that your exposure exceeds the PEL (without regard to your use of a respirator), then your employer must also notify you of this in writing, and provide you with a description of the corrective action that has been taken or will be taken to reduce your exposure.

Your exposure must be rechecked by monitoring, at least every six months if your exposure is at or over the action level but below the PEL. Your employer may discontinue monitoring for you if 2 consecutive measurements, taken at least 7 days apart, are at or below the action level. Air monitoring must be repeated every 3 months if you are exposed over the PEL. Your employer must continue monitoring for you at this frequency until 2 consecutive measurements, taken at least 7 days apart, are below the PEL but above the action level, at which time your employer must repeat monitoring of your exposure every six months and may discontinue monitoring only after your exposure drops to or below the action level. However, whenever there is a change of equipment, process, control, or personnel or a new type of job is added at your workplace which may result in new or additional exposure to lead, your employer must perform additional monitoring.

III. Methods of Compliance – Subsection (e)

Your employer is required to assure that no employee is exposed to lead in excess of the PEL as an 8–hour TWA. The standard for lead in construction requires employers to institute engineering and work practice controls including administrative controls to the extent feasible to reduce employee exposure to lead. Where such controls are feasible but not adequate to reduce exposures below the PEL they must be used nonetheless to reduce exposures to the lowest level that can be accomplished by these means and then supplemented with appropriate respiratory protection. Your employer must establish a regulated area that includes the work area where airborne exposure to lead is above the PEL, or where the lead–related tasks listed in subsection (d)(2) are performed.

Your employer is required to develop and implement a written compliance program prior to the commencement of any job where employee exposures may reach the PEL as an 8–hour TWA. The standard identifies the various elements that must be included in the plan. For example, employers are required to include a description of operations in which lead is emitted, detailing other relevant information about the operation such as the type of equipment used, the type of material involved, employee job responsibilities, operating procedures and maintenance practices. In addition, your employer's compliance plan must specify the means that will be used to achieve compliance and, where engineering controls are required, include any engineering plans or studies that have been used to select the control methods. If administrative controls involving job rotation are used to reduce employee exposure to lead, the job rotation sched-

ule must be included in the compliance plan. The plan must also detail the type of protective clothing and equipment, including respirators, housekeeping and hygiene practices that will be used to protect you from the adverse effects of exposure to lead.

The written compliance program must be made available, upon request, to affected employees and their designated representatives, the Chief and NIOSH.

Finally, the plan must be reviewed and updated at least every 6 months to assure it reflects the current status in exposure control.

IV. Respiratory Protection – Subsection (f)

Your employer is required to provide and assure your use of respirators when your exposure to lead is not controlled below the PEL by other means. The employer must pay the cost of the respirator. Whenever you request one, your employer is also required to provide you a respirator even if your air exposure level is not above the PEL. You might desire a respirator when, for example, you have received medical advice that your lead absorption should be decreased. Or, you may intend to have children in the near future, and want to reduce the level of lead in your body to minimize adverse reproductive effects. While respirators are the least satisfactory means of controlling your exposure, they are capable of providing significant protection if properly chosen, fitted, worn, cleaned, maintained, and replaced when they stop providing adequate protection.

Your employer is required to select respirators from the types listed in Table I of the Respiratory Protection section of the standard (section 1532.1(f)). Any respirator chosen must be approved by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 42 CFR part 84. This respirator selection table will enable your employer to choose a type of respirator which will give you a proper amount of protection based on your airborne lead exposure. Your employer may select a type of respirator that provides greater protection than that required by the standard; that is, one recommended for a higher concentration of lead than is present in your workplace. For example, a powered air purifying respirator (PAPR) is much more protective than a typical negative pressure respirator, and may also be more comfortable to wear. A PAPR has a filter, cartridge or canister to clean the air, and a power source which continuously blows filtered air into your breathing zone. Your employer might make a PAPR available to you to ease the burden of having to wear a respirator for long periods of time. The standard provides that you can obtain a PAPR upon request.

Your employer must assure that your respirator facepiece fits properly. Proper fit of a respirator facepiece is critical. Obtaining a proper fit on each employee may require your employer to make available two or three different mask types. In order to assure that your respirator fits properly and that facepiece leakage is minimized, your employer must give you either a qualitative fit test or a quantitative fit test as specified in Appendix A of the Respiratory Protection standard located at section 5144.

You must also receive from your employer proper training in the use of respirators. Your employer is required to teach you how to wear a respirator, to know why it is needed, and to understand its limitations.

The standard provides that if your respirator uses filter elements, you must be given an opportunity to change the filter elements whenever an increase in breathing resistance is detected. You also must be permitted to periodically leave your work area to wash your face and respirator facepiece whenever necessary to prevent skin irritation. If you ever have difficulty in breathing during a fit test or while using a respirator, your employer must make a medical examination available to you to determine whether you can safely wear a respirator. The result of this examination may be to give you a positive pressure respirator (which reduces breathing resistance) or to provide alternative means of protection.

V. Protective Work Clothing and Equipment – Subsection (g)

If you are exposed to lead above the PEL as an 8–hour TWA, without regard to your use of a respirator, or if you are exposed to lead compounds such as lead arsenate or lead azide which can cause skin and eye irritation, your employer must provide you with protective work clothing and equipment appropriate for the hazard. If work clothing is provided, it must be provided in a clean and dry condition at least weekly, and daily if your airborne exposure to lead is greater than 200 $\mu g/m^3$. Appropriate protective work clothing and equipment can include coveralls or similar full–body work clothing, gloves, hats, shoes or disposable shoe coverlets, and face shields or vented goggles. Your employer is required to provide all such equipment at no cost to you. In addition, your employer is responsible for providing repairs and replacement as necessary, and also is responsible for the cleaning, laundering or disposal of protective clothing and equipment.

The standard requires that your employer assure that you follow good work practices when you are working in areas where your exposure to lead may exceed the PEL. With respect to protective clothing and equipment, where appropriate, the following procedures should be observed prior to beginning work:

1. Change into work clothing and shoe covers in the clean section of the designated changing areas;

2. Use work garments of appropriate protective gear, including respirators before entering the work area; and

3. Store any clothing not worn under protective clothing in the designated changing area.

Workers should follow these procedures upon leaving the work area:

1. HEPA vacuum heavily contaminated protective work clothing while it is still being worn. At no time may lead be removed from protective clothing by any means which result in uncontrolled dispersal of lead into the air;

2. Remove shoe covers and leave them in the work area;

3. Remove protective clothing and gear in the dirty area of the designated changing area. Remove protective coveralls by carefully rolling down the garment to reduce exposure to dust.

4. Remove respirators last; and

5. Wash hands and face.

Workers should follow these procedures upon finishing work for the day (in addition to procedures described above):

1. Where applicable, place disposal coveralls and shoe covers with the abatement waste;

2. Contaminated clothing which is to be cleaned, laundered or disposed of must be placed in closed containers in the change room.

3. Clean protective gear, including respirators, according to standard procedures;

4. Wash hands and face again. If showers are available, take a shower and wash hair. If shower facilities are not available at the work site, shower immediately at home and wash hair.

VI. Housekeeping – Subsection (h)

Your employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. Vacuuming is the preferred method of meeting this requirement, and the use of compressed air to clean floors and other surfaces is generally prohibited unless removal with compressed air is done in conjunction with ventilation systems designed to contain dispersal of the lead dust. Dry or wet sweeping, shoveling, or brushing may not be used except where vacuuming or other equally effective methods have been tried and do not work. Vacuums must be used equipped with a special filter called a high–efficiency particulate air (HEPA) filter and emptied in a manner which minimizes the reentry of lead into the workplace.

VII. Hygiene Facilities, Practices and Regulated Areas – Subsection (i)

The standard requires that hand washing facilities be provided where occupational exposure to lead occurs. In addition, change areas, showers (where feasible), and lunchrooms or eating areas are to be made available to workers exposed to lead above the PEL. Your employer must assure that except in these facilities, food and beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied, where airborne exposures are above the PEL. Change rooms provided by your employer must be equipped with separate storage facilities for your protective clothing and equipment and street clothes to

avoid cross-contamination. After showering, no required protective clothing or equipment worn during the shift may be worn home. It is important that contaminated clothing or equipment be removed in change areas and not be worn home or you will extend your exposure and expose your family since lead from your clothing can accumulate in your house, car, etc.

Lunchrooms or eating areas may not be entered with protective clothing or equipment unless surface dust has been removed by vacuuming, downdraft booth, or other cleaning method. Finally, workers exposed above the PEL must wash both their hands and faces prior to eating, drinking, smoking or applying cosmetics.

All of the facilities and hygiene practices just discussed are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothes, or your possessions. Therefore, employers shall establish regulated areas, where access is controlled by the supervisor for work areas where employees are exposed to lead at or above the PEL or performing the specific tasks that require air monitoring, as required by subsection (d)(2). Any employee that enters the regulated area must be provided with protective equipment. Strict compliance with these provisions can virtually eliminate several sources of lead exposure which significantly contribute to excessive lead absorption.

VIII. Medical Surveillance – Subsection (j)

The medical surveillance program is part of the standard's comprehensive approach to the prevention of lead-related disease. Its purpose is to supplement the main thrust of the standard which is aimed at minimizing airborne concentrations of lead and sources of ingestion. Only medical surveillance can determine if the other provisions of the standard have affectively protected you as an individual. Compliance with the standard's provision will protect most workers from the adverse effects of lead exposure, but may not be satisfactory to protect individual workers (1) who have high body burdens of lead acquired over past years, (2) who have additional uncontrolled sources of non-occupational lead exposure, (3) who exhibit unusual variations in lead absorption rates, or (4) who have specific non-work related medical conditions which could be aggravated by lead exposure (e.g., renal disease, anemia). In addition, control systems may fail, or hygiene and respirator programs may be inadequate. Periodic medical surveillance of individual workers will help detect those failures. Medical surveillance will also be important to protect your reproductive ability-regardless of whether you are a man or woman.

All medical surveillance required by the standard must be performed by or under the supervision of a licensed physician. The employer must provide required medical surveillance without cost to employees and at a reasonable time and place. The standard's medical surveillance program has two parts — periodic biological monitoring and medical examinations. Your employer's obligation to offer you medical surveillance is triggered by the results of the air monitoring program. Full medical surveillance must be made available to all employees who are or may be exposed to lead in excess of the action level for more than 30 days a year and whose blood lead level exceeds 40 µg/dl. Initial medical surveillance consisting of blood sampling and analysis for lead and zinc protoporphyrin must be provided to all employees exposed at any time (1 day) above the action level.

Biological monitoring under the standard must be provided at least every 2 months for the first 6 months and every 6 months thereafter until your blood lead level is below 40 µg/dl. A zinc protoporphyrin (ZPP) test is a very useful blood test which measures an adverse metabolic effect of lead on your body and is therefore an indicator of lead toxicity.

If your BLL exceeds 40 µg/dl the monitoring frequency must be increased from every 6 months to at least every 2 months and not reduced until two consecutive BLLs indicate a blood lead level below 40 µg/dl. Each time your BLL is determined to be over 40 µg/dl, your employer must notify you of this in writing within five working days of his or her receipt of the test results. The employer must also inform you that the standard requires temporary medical removal with economic protection when your BLL exceeds 50 µg/dl. (See Discussion of Medical Removal Protection-Subsection (k).) Anytime your BLL exceeds 50 µg/dl your employer must make available to you within two weeks of receipt of these test results a second follow-up BLL test to confirm your BLL. If the two tests both exceed 50 µg/dl, and you are temporarily removed, then your employer must make successive BLL tests available to you on a monthly basis during the period of your removal.

Medical examinations beyond the initial one must be made available on an annual basis if your blood lead level exceeds 40 µg/dl at any time during the preceding year and you are being exposed above the airborne action level of 30 $\mu g/m^3$ for 30 or more days per year. The initial examination will provide information to establish a baseline to which subsequent data can be compared.

An initial medical examination to consist of blood sampling and analysis for lead and zinc protoporphyrin must also be made available (prior to assignment) for each employee being assigned for the first time to an area where the airborne concentration of lead equals or exceeds the action level at any time. In addition, a medical examination or consultation must be made available as soon as possible if you notify your employer that you are experiencing signs or symptoms commonly associated with lead poisoning or that you have difficulty breathing while wearing a respirator or during a respirator fit test. You must also be provided a medical examination or consultation if you notify your employer that you desire medical advice concerning the effects of current or past exposure to lead on your ability to procreate a healthy child.

Finally, appropriate follow-up medical examinations or consultations may also be provided for employees who have been temporarily removed from exposure under the medical removal protection provisions of the standard. (See Part IX, below.)

The standard specifies the minimum content of pre-assignment and annual medical examinations. The content of other types of medical examinations and consultations is left up to the sound discretion of the examining physician. Pre-assignment and annual medical examinations must include (1) a detailed work history and medical history; (2) a thorough physical examination, including an evaluation of your pulmonary status if you will be required to use a respirator; (3) a blood pressure measurement; and (4) a series of laboratory tests designed to check your blood chemistry and your kidney function. In addition, at any time upon your request, a laboratory evaluation of male fertility will be made (microscopic examination of a sperm sample), or a pregnancy test will be given.

The standard does not require that you participate in any of the medical procedures, tests, etc. which your employer is required to make available to you. Medical surveillance can, however, play a very important role in protecting your health. You are strongly encouraged, therefore, to participate in a meaningful fashion. The standard contains a multiple physician review mechanism which will give you a chance to have a physician of your choice directly participate in the medical surveillance program. If you are dissatisfied with an examination by a physician chosen by your employer, you can select a second physician to conduct an independent analysis. The two doctors would attempt to resolve any differences of opinion, and select a third physician to resolve any firm dispute. Generally your employer will choose the physician who conducts medical surveillance under the lead standard – unless you and your employer can agree on the choice of a physician or physicians. Some companies and unions have agreed in advance, for example, to use certain independent medical laboratories or panels of physicians. Any of these arrangements are acceptable so long as required medical surveillance is made available to workers.

The standard requires your employer to provide certain information to a physician to aid in his or her examination of you. This information includes (1) the standard and its appendices, (2) a description of your duties

as they relate to occupational lead exposure, (3) your exposure level or anticipated exposure level, (4) a description of any personal protective equipment you wear, (5) prior blood lead level results, and (6) prior written medical opinions concerning you that the employer has. After a medical examination or consultation the physician must prepare a written report which must contain (1) the physician's opinion as to whether you have any medical condition which places you at increased risk of material impairment to health from exposure to lead, (2) any recommended special protective measures to be provided to you, (3) any blood lead level determinations, and (4) any recommended limitation on your use of respirators. This last element must include a determination of whether you can wear a powered air purifying respirator (PAPR) if you are found unable to wear a negative pressure respirator.

The medical surveillance program of the interim lead standard may at some point in time serve to notify certain workers that they have acquired a disease or other adverse medical condition as a result of occupational lead exposure. If this is true, these workers might have legal rights to compensation from public agencies, their employers, firms that supply hazardous products to their employers, or other persons. Some states have laws, including worker compensation laws, that disallow a worker who learns of a job–related health impairment to sue, unless the worker sues within a short period of time after learning of the impairment. (This period of time may be a matter of months or years.) An attorney can be consulted about these possibilities. It should be stressed that OSHA is in no way trying to either encourage or discourage claims or lawsuits. However, since results of the standard's medical surveillance program can significantly affect the legal remedies of a worker who has acquired a job–related disease or impairment, it is proper for OSHA to make you aware of this.

The medical surveillance section of the standard also contains provisions dealing with chelation. Chelation is the use of certain drugs (administered in pill form or injected into the body) to reduce the amount of lead absorbed in body tissues. Experience accumulated by the medical and scientific communities has largely confirmed the effectiveness of this type of therapy for the treatment of very severe lead poisoning. On the other hand, it has also been established that there can be a long list of extremely harmful side effects associated with the use of chelating agents. The medical community has balanced the advantages and disadvantages resulting from the use of chelating agents in various circumstances and has established when the use of these agents is acceptable. The standard includes these accepted limitations due to a history of abuse of chelation therapy by some lead companies. The most widely used chelating agents are calcium disodium EDTA, (Ca Na2 EDTA), Calcium Disodium Versenate (Versenate), and d–penicillamine (penicillamine or Cupramine).

The standard prohibits "prophylactic chelation" of any employee by any person the employer retains, supervises or controls. "Prophylactic chelation" is the routine use of chelating or similarly acting drugs to prevent elevated blood levels in workers who are occupationally exposed to lead, or the use of these drugs to routinely lower blood lead levels to predesignated concentrations believed to be "safe". It should be emphasized that where an employer takes a worker who has no symptoms of lead poisoning and has chelation carried out by a physician (either inside or outside of a hospital) solely to reduce the worker's blood lead level, that will generally be considered prophylactic chelation. The use of a hospital and a physician does not mean that prophylactic chelation is not being performed. Routine chelation to prevent increased or reduce current blood lead levels is unacceptable whatever the setting.

The standard allows the use of "therapeutic" or "diagnostic" chelation if administered under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring. Therapeutic chelation responds to severe lead poisoning where there are marked symptoms. Diagnostic chelation involved giving a patient a dose of the drug then collecting all urine excreted for some period of time as an aid to the diagnosis of lead poisoning.

In cases where the examining physician determines that chelation is appropriate, you must be notified in writing of this fact before such treatment. This will inform you of a potentially harmful treatment, and allow you to obtain a second opinion.

IX. Medical Removal Protection – Subsection (k)

Excessive lead absorption subjects you to increased risk of disease. Medical removal protection (MRP) is a means of protecting you when, for whatever reasons, other methods, such as engineering controls, work practices, and respirators, have failed to provide the protection you need. MRP involves the temporary removal of a worker from his or her regular job to a place of significantly lower exposure without any loss of earnings, seniority, or other employment rights or benefits. The purpose of this program is to cease further lead absorption and allow your body to naturally excrete lead which has previously been absorbed. Temporary medical removal can result from an elevated blood lead level, or a medical opinion. For up to 18 months, or for as long as the job the employee was removed from lasts, protection is provided as a result of either form of removal. The vast majority of removed workers, however, will return to their former jobs long before this eighteen month period expires.

You may also be removed from exposure even if your blood lead level is below 50 μg/dl if a final medical determination indicates that you temporarily need reduced lead exposure for medical reasons. If the physician who is implementing your employers medical program makes a final written opinion recommending your removal or other special protective measures, your employer must implement the physician's recommendation. If you are removed in this manner, you may only be returned when the doctor indicates that it is safe for you to do so.

The standard does not give specific instructions dealing with what an employer must do with a removed worker. Your job assignment upon removal is a matter for you, your employer and your union (if any) to work out consistent with existing procedures for job assignments. Each removal must be accompanied in a manner consistent with existing collective bargaining relationships. Your employer is given broad discretion to implement temporary removals so long as no attempt is made to override existing agreements. Similarly, a removed worker is provided no right to veto an employer's choice which satisfies the standard.

In most cases, employers will likely transfer removed employees to other jobs with sufficiently low lead exposure. Alternately, a worker's hours may be reduced so that the time weighted average exposure is reduced, or he or she may be temporarily laid off if no other alternative is feasible.

In all of these situation, MRP benefits must be provided during the period of removal – i.e., you continue to receive the same earnings, seniority, and other rights and benefits you would have had if you had not been removed. Earnings includes more than just your base wage; it includes overtime, shift differentials, incentives, and other compensation you would have earned if you had not been removed. During the period of removal you must also be provided with appropriate follow–up medical surveillance. If you were removed because your blood lead level was too high, you must be provided with a monthly blood test. If a medical opinion caused your removal, you must be provided medical tests or examinations that the doctor believes to be appropriate. If you do not participate in this follow up medical surveillance, you may lose your eligibility for MRP benefits.

When you are medically eligible to return to your former job, your employer must return you to your "former job status." This means that you are entitled to the position, wages, benefits, etc., you would have had if you had not been removed. If you would still be in your old job if no removal had occurred that is where you go back. If not, you are returned consistent with whatever job assignment discretion your employer would have had if no removal had occurred. MRP only seeks to maintain your rights, not expand them or diminish them.

If you are removed under MRP and you are also eligible for worker compensation or other compensation for lost wages, your employer's MRP benefits obligation is reduced by the amount that you actually receive from these other sources. This is also true if you obtain other employment during the time you are laid off with MRP benefits.

The standard also covers situations where an employer voluntarily removes a worker from exposure to lead due to the effects of lead on the employee's medical condition, even though the standard does not require removal. In these situations MRP benefits must still be provided as though the standard required removal. Finally, it is important to note that in all cases where removal is required, respirators cannot be used as a substitute. Respirators may be used before removal becomes necessary, but not as an alternative to a transfer to a low exposure job, or to lay-off with MRP benefits.

X. Employee Information, Training and Certification – Subsection (l)

Your employer is required to provide an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead compounds such as lead arsenate or lead azide. The program must train these employees regarding the specific hazards associated with their work environment, protective measures which can be taken, including the contents of any compliance plan in effect, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. All employees must be trained prior to initial assignment to areas where there is a possibility of exposure over the action level.

This training program must also be provided at least annually thereafter unless further exposure above the action level will not occur.

The California Department of Health Services requires the certification of employees and supervisors performing lead related construction activities in residential and public buildings, as defined in Title 17, California Code of Regulations, Division 1, Chapter 8. Lead related construction work is defined in Title 17 as any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup, that, by using or disturbing lead containing material or soil, may result in significant exposure of adults or children to lead. "Public building" means a structure which is generally accessible to the public, including but not limited to, schools, daycare centers, museums, airports, hospitals, stores, convention centers, government facilities, office buildings and any other building which is not an industrial building or a residential building. Where training certification is required, the training must be given by a training provider accredited by the California Department of Health Services.

XI. Signs – Subsection (m)

The standard requires that the following warning sign be posted in each regulated area or work areas where the exposure to lead exceeds the PEL:

WARNING
LEAD WORK AREA
POISONNO
SMOKING OR EATING

These signs are to be posted and maintained in a manner which assures that the legend is readily visible.

XII. Recordkeeping – Subsection (n)

Your employer is required to keep all records of exposure monitoring for airborne lead. These records must include the name and job classification of employees measured, details of the sampling and analytical techniques, the results of this sampling, and the type of respiratory protection being worn by the person sampled. Such records are to be retained for at least 30 years. Your employer is also required to keep all records of biological monitoring and medical examination results. These records must include the names of the employees, the physician's written opinion, and a copy of the results of the examination. Medical records must be preserved and maintained for the duration of employment plus 30 years. However, if the employee's duration of employment is less than one year, the employer need not retain that employee's medical records beyond the period of employment if they are provided to the employee upon termination of employment.

Recordkeeping is also required if you are temporarily removed from your job under the medical removal protection program. This record must include your name and social security number, the date of your removal and return, how the removal was or is being accomplished, and whether or not the reason for the removal was an elevated blood lead level. Your employer is required to keep each medical removal record only for as long as the duration of an employee's employment.

The standard requires that if you request to see or copy environmental monitoring, blood lead level monitoring, or medical removal records, they must be made available to you or to a representative that you authorize. Your union also has access to these records. Medical records other than BLL's must also be provided upon request to you, to your physician or to any other person whom you may specifically designate. Your union does not have access to your personal medical records unless you authorize their access.

XIII. Observation of Monitoring – Subsection (o)

When air monitoring for lead is performed at your workplace as required by this standard, your employer must allow you or someone you designate to act as an observer of the monitoring. Observers are entitled to an explanation of the measurement procedure, and to record the results obtained. Since results will not normally be available at the time of the monitoring, observers are entitled to record or receive the results of the monitoring when returned by the laboratory. Your employer is required to provide the observer with any personal protective devices required to be worn by employees working in the area that is being monitored. The employer must require the observer to wear all such equipment and to comply with all other applicable safety and health procedures.

XIV. Effective Date – Subsection (p)

The standard's effective date was November 4, 1993. Employer obligations under the standard begin as of that date with full implementation of engineering controls as soon as possible but no later than within 4 months, and all other provisions completed as soon as possible, but no later than within 2 months from the effective date.

XV. For Additional Information

A. A copy of the standard for lead in construction can be obtained free of charge by calling or writing your local Cal/OSHA Office.

B. Additional information about the standard, its enforcement, and your employer's compliance can be obtained from the nearest Cal/OSHA Office listed in your telephone directory.

## Appendix C to § 1532.1 — Medical Surveillance Guidelines

Introduction

The primary purpose of the Occupational Safety and Health Act of 1970 is to assure, so far as possible, safe and healthful working conditions for every working man and woman. The occupational health standard for lead in construction is designed to protect workers exposed to inorganic lead including metallic lead, all inorganic lead compounds and organic lead soaps.

Under this standard occupational exposure to inorganic lead is to be limited to 50 $\mu g/m^3$ (micrograms per cubic meter) based on an 8 hour time-weighted average (TWA). This permissible exposure limit (PEL) must be achieved through a combination of engineering, work practice and administrative controls to the extent feasible. Where these controls are in place but are found not to reduce employee exposures to or below the PEL, they must be used nonetheless, and supplemented with respirators to meet the 50 $\mu g/m^3$ exposure limit.

The standard also provides for a program of biological monitoring for employees exposed to lead above the action level at any time, and additional medical surveillance for all employees exposed to levels of inorganic lead above 30 $\mu g/m^3$ (TWA) for more than 30 days per year and whose BLL exceeds 40 $\mu g/dl$.

The purpose of this document is to outline the medical surveillance provisions of the interim standard for inorganic lead in construction, and to provide further information to the physician regarding the examination and evaluation of workers exposed to inorganic lead.

Section 1 provides a detailed description of the monitoring procedure including the required frequency of blood testing for exposed workers, provisions for medical removal protection (MRP), the recommended right of the employee to a second medical opinion, and notification and recordkeeping requirements of the employer. A discussion of the requirements for respirator use and respirator monitoring and OSHA's position on prophylactic chelation therapy are also included in this section.

Section 2 discusses the toxic effects and clinical manifestations of lead poisoning and effects of lead intoxication on enzymatic pathways in heme synthesis. The adverse effects on both male and female reproductive capacity and on the fetus are also discussed.

Section 3 outlines the recommended medical evaluation of the worker exposed to inorganic lead, including details of the medical history, physical examination, and recommended laboratory tests, which are based on the toxic effects of lead as discussed in Section 2.

Section 4 provides detailed information concerning the laboratory tests available for the monitoring of exposed workers. Included also is a discussion of the relative value of each test and the limitations and precautions which are necessary in the interpretation of the laboratory results.

I. Medical Surveillance and Monitoring Requirements for Workers Exposed to Inorganic Lead

Under the standard for inorganic lead in the construction industry, initial medical surveillance consisting of biological monitoring to include blood lead and ZPP level determination shall be provided to employees exposed to lead at or above the action level on any one day. In addition, a program of biological monitoring is to be made available to all employees exposed above the action level at any time and additional medical surveillance is to be made available to all employees exposed to lead above 30 $\mu g/m^3$ TWA for more than 30 days each year and whose BLL exceeds 40 $\mu g/dl$. This program consists of periodic blood sampling and medical evaluation to be performed on a schedule which is defined by previous laboratory results, worker complaints or concerns, and the clinical assessment of the examining physician.

Under this program, the blood lead level (BLL) of all employees who are exposed to lead above 30 $\mu g/m^3$ for more than 30 days per year or whose blood lead is above 40 $\mu g/dl$ but exposed for no more than 30 days per year is to be determined at least every two months for the first six months of exposure and every six months thereafter. The frequency is increased to every two months for employees whose last blood lead level was 40 $\mu g/dl$ or above. For employees who are removed from exposure to lead due to an elevated blood lead, a new blood lead level must be measured monthly. A zinc protoporphyrin (ZPP) measurement is strongly recommended on each occasion that a blood lead level measurement is made.

An annual medical examination and consultation performed under the guidelines discussed in Section 3 is to be made available to each employee exposed above 30 $\mu g/m^3$ for more than 30 days per year for whom a blood test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 $\mu g/dl$. Also, an examination is to be given to all employees prior to their assignment to an area in which airborne lead concentrations each or exceed the 30 $\mu g/m3$ for more than 30 days per year. In addition, a medical examination must be provided as soon as possible after notification by an employee that the employee has developed signs and symptoms commonly associated with lead intoxication, that the employee desires medical advice regarding lead exposure and the ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during respirator use. An examination is also to be made available to each employee removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited or specially protected pursuant to medical recommendations.

Results of biological monitoring or the recommendations of an examining physician may necessitate removal of an employee from further lead exposure pursuant to the standard's medical removal protection (MRP) program. The object of the MRP program is to provide temporary medical removal to workers either with substantially elevated blood lead levels or otherwise at risk of sustaining material health impairment from continued substantial exposure to lead.

Under the standard's ultimate worker removal criteria, a worker is to be removed from any work having an eight hour TWA exposure to lead of 30 $\mu g/m^3$ when his or her blood lead level reaches 50 $\mu g/dl$ and is confirmed by a second follow-up blood lead level performed within two weeks after the employer receives the results of the first blood sampling test. Return of the employee to his or her job status depends on a worker's blood lead level declining to 40 $\mu g/dl$.

As part of the interim standard, the employer is required to notify in writing each employee whose blood lead level exceeds 40 $\mu g/dl$. In addition each such employee is to be informed that the standard requires medical removal with MRP benefits, discussed below, when an employee's blood lead level exceeds the above defined limit.

In addition to the above blood lead level criterion, temporary worker removal may also take place as a result of medical terminations and recommendations. Written medical opinions must be prepared after each examination pursuant to the standard. If the examining physician includes a medical finding, determination or opinion that the employee has a medical condition which places the employee at increased risk of material health impairment from exposure to lead, then the employee must be removed from exposure to lead at or above 30 $\mu g/m^3$. Alternatively, if the examining physician recommends special protective measures for an employee (e.g., use of a powered air purifying respirator) or recommends limitations on an employee's exposure to lead, then the employer must implement these recommendations.

Recommendations may be more stringent than the specific provisions of the standard. The examining physician, therefore, is given broad flexibility to tailor special protective procedures to the needs of individual employees. This flexibility extends to the evaluation and management of pregnant workers and male and female workers who are planning to raise children. Based on the history, physical examination, and laboratory studies, the physician might recommend special protective measures or medical removal for an employee who is pregnant or who is planning to conceive a child when, in the physician's judgment, continued exposure to lead at the current job would pose a significant risk. The return of the employee to his or her former job status, or the removal of special protections or limitations, depends upon the examining physician determining that the employee is no longer at increased risk of material impairment or that special measures are no longer needed.

During the period of any form of special protection or removal, the employer must maintain the worker's earnings, seniority, and other employment rights and benefits (as though the worker had not been removed) for a period of up to 18 months or for as long as the job the employee was removed from lasts if less than 18 months. This economic protection will maximize meaningful worker participation in the medical surveillance program, and is appropriate as part of the employer's overall obligation to provide a safe and healthful workplace. The provisions of MRP benefits during the employee's removal period may, however, be conditioned upon participation in medical surveillance.

The lead standard provides for a multiple physician review in cases where the employee wishes a second opinion concerning potential lead poisoning or toxicity. If an employee wishes a second opinion, he or she can make an appointment with a physician of his or her choice. This second physician will review the findings, recommendations or determinations of the first physician and conduct any examinations, consultations or tests deemed necessary in an attempt to make a final medical determination. If the first and second physicians do not agree in their assessment they must try to resolve their differences. If they cannot reach an agreement then they must designate a third physician to resolve the dispute.

The employer must provide examining and consulting physicians with the following specific information: A copy of the lead regulations and all

appendices, a description of the employee's duties as related to exposure, the exposure level or anticipated level to lead and any other toxic substances (if applicable), a description of personal protective equipment used, blood lead levels, and all prior written medical opinions regarding the employee in the employer's possession or control. The employer must also obtain from the physician and provide the employee with a written medical opinion containing blood lead levels, the physician's opinion as to whether the employee is at risk of material impairment to health, any recommended protective measures for the employee if further exposure is permitted, as well as any recommended limitations upon an employee's use of respirators.

Employers must instruct each physician not to reveal to the employer in writing or in any other way his or her findings, laboratory results, or diagnoses which are felt to be unrelated to occupational lead exposure. They must also instruct each physician to advise the employee of any occupationally or non-occupationally related medical condition requiring further treatment or evaluation.

The standard provides for the use of respirators where engineering and other primary controls are not effective. However, the use of respirator protection shall not be used in lieu of temporary medical removal due to elevated blood lead levels or findings that an employee is at risk of material health impairment. This is based on the numerous inadequacies of respirators including skin rash where the facepiece makes contact with the skin, unacceptable stress to breathing in some workers with underlying cardiopulmonary impairment, difficulty in providing adequate fit, the tendency for respirators to create additional hazards by interfering with vision, hearing, and mobility, and the difficulties of assuring the maximum effectiveness of a complicated work practice program involving respirators. Respirators do, however, serve a useful function where engineering and work practice controls are inadequate by providing supplementary, interim, or short-term protection, provided they are properly selected for the environment in which the employee will be working, properly fitted to the employee, maintained and cleaned periodically, and worn by the employee when required.

In its standard on occupational exposure to inorganic lead in the construction industry, OSHA has prohibited prophylactic chelation. Diagnostic and therapeutic chelation are permitted only under the supervision of a licensed physician with appropriate medical monitoring in an acceptable clinical setting. The decision to initiate chelation therapy must be made on an individual basis and take into account the severity of symptoms felt to be a result of lead toxicity along with blood lead levels, ZPP levels, and other laboratory tests as appropriate. EDTA and penicillamine which are the primary chelating agents used in the therapy of occupational lead poisoning have significant potential side effects and their use must be justified on the basis of expected benefits to the worker. Unless frank and severe symptoms are prevent, therapeutic chelation is not recommended, given the opportunity to remove a worker from exposure and allow the body to naturally excrete accumulated lead. As a diagnostic aid, the chelation mobilization test using CA-EDTA has limited applicability. According to some investigators, the test can differentiate between lead-induced and other nephropathies. The test may also provide an estimation of the mobile fraction of the total body lead burden.

Employers are required to assure that accurate records are maintained on exposure assessment, including environmental monitoring, medical surveillance, and medical removal for each employee. Exposure assessment records must be kept for at least 30 years. Medical surveillance records must be kept for the duration of employment plus 30 years except in cases where the employment was less than one year. If duration of employment is less than one year, the employer need not retain this record beyond the term of employment if the record is provided to the employee upon termination of employment. Medical removal records also must be maintained for the duration of employment. All records required under the standard must be made available upon request to the Chief and the National Institute for Occupational Safety and Health. Employers must also make environmental and biological monitoring and medical removal records available to affected employees and to former employees or their authorized employee representatives. Employees or their specifically designated representatives have access to their entire medical surveillance records.

In addition, the standard requires that the employer inform all workers exposed to lead at or above 30 $\mu g/m^3$ of the provisions of the standard and all its appendices, the purpose and description of medical surveillance and provisions for medical removal protection if temporary removal is required. An understanding of the potential health effects of lead exposure by all exposed employees along with full understanding of their rights under the lead standard is essential for an effective monitoring program.

II. Adverse Health Effects of Inorganic Lead

Although the toxicity of lead has been known for 2,000 years, the knowledge of the complex relationship between lead exposure and human response is still being refined. Significant research into the toxic properties of lead continues throughout the world, and it should be anticipated that our understanding of thresholds of effects and margins of safety will be improved in future years. The provisions of the lead standard are founded on two prime medical judgments: First, the prevention of adverse health effects from exposure to lead throughout a working lifetime requires that worker blood lead levels be maintained at or below 40 µg/dl and second, the blood lead levels of workers, male or female, who intend to parent in the near future should be maintained below 30 µg/dl to minimize adverse reproductive health effects to the parents and developing fetus. The adverse effects of lead on reproduction are being actively researched and Cal/OSHA encourages the physician to remain abreast of recent developments in the area to best advise pregnant workers or workers planning to conceive children.

The spectrum of health effects caused by lead exposure can be subdivided into five developmental stages: Normal, physiological changes of uncertain significance, pathophysiological changes, overt symptoms (morbidity), and mortality. Within this process there are no sharp distinctions, but rather a continuum of effects. Boundaries between categories overlap due to the wide variation of individual responses and exposures in the working population. OSHA's development of the lead standard focused on pathophysiological changes as well as later stages of disease.

1. Heme Synthesis Inhibition. The earliest demonstrated effect of lead involves its ability to inhibit at least two enzymes of the heme synthesis pathway at very low blood levels. Inhibition of delta aminolevulinic acid dehydrase (ALA-D) which catalyzes the conversion of delta-aminolevulinic acid (ALA) to protoporphyrin is observed at a blood lead level below 20 µg/dl. At a blood lead level of 40 µg/dl, more than 20% of the population would have 70% inhibition of ALA-D. There is an exponential increase in ALA excretion at blood lead levels greater than 40 µg/dl.

Another enzyme, ferrochelatase, is also inhibited at low blood lead levels. Inhibition of ferrochelatase leads to increased free erythrocyte protoporphyrin (FEP) in the blood which can then bind to zinc to yield zinc protoporphyrin. At a blood lead level of 50 µg/dl or greater, nearly 100% of the population will have an increase in FEP. There is also an exponential relationship between blood lead levels greater than 40 µg/dl and the associated ZPP level, which has led to the development of the ZPP screening test for lead exposure.

While the significance of these effects is subject to debate, it is Cal/OSHA's position that these enzyme disturbances are early stages of a disease process which may eventually result in the clinical symptoms of lead poisoning. Whether or not the effects do progress to the later stages of clinical disease, disruption of these enzyme processes over a working lifetime is considered to be a material impairment of health.

One of the eventual results of lead-induced inhibition of enzymes in the heme synthesis pathway is anemia which can be asymptomatic if mild but associated with a wide array of symptoms including dizziness, fatigue, and tachycardia when more severe. Studies have indicated that lead levels as low as 50 µg/dl can be associated with a definite decreased hemoglobin, although most cases of lead-induced anemia, as well as shortened red-cell survival times, occur at lead levels exceeding 80 µg/

dl. Inhibited hemoglobin synthesis is more common in chronic cases whereas shortened erythrocyte life span is more common in acute cases.

In lead–induced anemias, there is usually a reticulocytosis along with the presence of basophilic stippling, and ringed sideroblasts, although none of the above are pathognomonic for lead–induced anemia.

2. Neurological Effects. Inorganic lead has been found to have toxic effects on both the central and peripheral nervous systems. The earliest stages of lead–induced central nervous system effects first manifest themselves in the form of behavioral disturbances and central nervous system symptoms including irritability, restlessness, insomnia and other sleep disturbances, fatigue, vertigo, headache, poor memory, tremor, depression, and apathy. With more severe exposure, symptoms can progress to drowsiness, stupor, hallucinations, delirium, convulsions and coma.

The most severe and acute form of lead poisoning which usually follows ingestion or inhalation of large amounts of lead is acute encephalopathy which may arise precipitously with the onset of intractable seizures, coma, cardiorespiratory arrest, and death within 48 hours.

While there is disagreement about what exposure levels are needed to produce the earliest symptoms, most experts agree that symptoms definitely can occur at blood lead levels of 60 µg/dl whole blood and therefore recommend a 40 µg/dl maximum. The central nervous system effects frequently are not reversible following discontinued exposure or chelation therapy and when improvement does occur, it is almost always only partial.

The peripheral neuropathy resulting from lead exposure characteristically involves only motor function with minimal sensory damage and has a marked predilection for the extensor muscles of the most active extremity. The peripheral neuropathy can occur with varying degrees of severity. The earliest and mildest form which can be detected in workers with blood lead levels as low as 50 µg/dl is manifested by slowing of motor nerve conduction velocity often without clinical symptoms. With progression of the neuropathy there is development of painless extensor muscle weakness usually involving the extensor muscles of the fingers and hand in the most active upper extremity, followed in severe cases by wrist drop or, much less commonly, foot drop.

In addition to slowing of nerve conduction, electromyographical studies in patients with blood lead levels greater than 50 µg/dl have demonstrated a decrease in the number of acting motor unit potentials, an increase in the duration of motor unit potentials, and spontaneous pathological activity including fibrillations and fasciculations. Whether these effects occur at levels of 40 µg/dl is undetermined.

While the peripheral neuropathies can occasionally be reversed with therapy, again such recovery is not assured particularly in the more severe neuropathies and often improvement is only partial. The lack of reversibility is felt to be due in part to segmental demyelination.

3. Gastrointestinal. Lead may also affect the gastrointestinal system producing abdominal colic or diffuse abdominal pain, constipation, obstipation, diarrhea, anorexia, nausea and vomiting. Lead colic rarely develops at blood lead levels below 80 µg/dl.

4. Renal. Renal toxicity represents one of the most serious health effects of lead poisoning. In the early stages of disease nuclear inclusion bodies can frequently be identified in proximal renal tubular cells. Renal function remains normal and the changes in this stage are probably reversible. With more advanced disease there is progressive interstitial fibrosis and impaired renal function. Eventually extensive interstitial fibrosis ensues with sclerotic glomeruli and dilated and atrophied proximal tubules; all represent end stage kidney disease. Azotemia can be progressive, eventually resulting in frank uremia necessitating dialysis. There is occasionally associated hypertension and hyperuricemia with or without gout.

Early kidney disease is difficult to detect. The urinalysis is normal in early lead nephropathy and the blood urea nitrogen and serum creatinine increase only when two–thirds of kidney function is lost. Measurement of creatinine clearance can often detect earlier disease as can other methods of measurement of glomerular filtration rate. An abnormal Ca–EDTA mobilization test has been used to differentiate between lead–induced and other nephropathies, but this procedure is not widely accepted. A form of Fanconi syndrome with aminoaciduria, glycosuria, and hyperphosphaturia indicating severe injury to the proximal renal tubules is occasionally seen in children.

5. Reproductive effects. Exposure to lead can have serious effects on reproductive function in both males and females. In male workers exposed to lead there can be a decrease in sexual drive, impotence, decreased ability to produce healthy sperm, and sterility. Malformed sperm (teratospermia), decreased number of sperm (hypospermia), and sperm with decreased motility (asthenospermia) can all occur. Teratospermia has been noted at mean blood lead levels of 53 µg/dl and hypospermia and athenospermia at 41 µg/dl. Furthermore, there appears to be a dose–response relationship for teratospermia in lead exposed workers.

Women exposed to lead may experience menstrual disturbances including dysmenorrhea, menorrhagia and amenorrhea. Following exposure to lead, women have a higher frequency of sterility, premature births, spontaneous miscarriages, and stillbirths.

Germ cells can be affected by lead and cause genetic damage in the egg or sperm cells before conception and result in failure to implant, miscarriage, stillbirth, or birth defects.

Infants of mothers with lead poisoning have a higher mortality during the first year and suffer from lowered birth weights, slower growth, and nervous system disorders.

Lead can pass through the placental barrier and lead levels in the mother's blood are comparable to concentrations of lead in the umbilical cord at birth. Transplacental passage becomes detectable at 12–14 weeks of gestation and increases until birth.

There is little direct data on damage to the fetus from exposure to lead but it is generally assumed that the fetus and newborn would be at least as susceptible to neurological damage as young children. Blood lead levels of 50–60 µg/dl in children can cause significant neurobehavioral impairments and there is evidence of hyperactivity at blood levels as low as 25 µg/dl. Given the overall body of literature concerning the adverse health effects of lead in children, Cal/OSHA feels that the blood lead level in children should be maintained below 30 µg/dl with a population mean of 15 µg/dl. Blood lead levels in the fetus and newborn likewise should not exceed 30 µg/dl.

Because of lead's ability to pass through the placental barrier and also because of the demonstrated adverse effects of lead on reproductive function in both the male and female as well as the risk of genetic damage of lead on both the ovum and sperm, Cal/OSHA recommends a 30 µg/dl maximum permissible blood lead level in both males and females who wish to bear children.

6. Other toxic effects. Debate and research continue on the effects of lead on the human body. Hypertension has frequently been noted in occupationally exposed individuals although it is difficult to assess whether this is due to lead's adverse effects on the kidney or if some other mechanism is involved. Vascular and electrocardiographic changes have been detected but have not been well characterized. Lead is thought to impair thyroid function and interfere with the pituitary–adrenal axis, but again these effects have not been well defined.

III. Medical Evaluation

The most important principle in evaluating a worker for any occupational disease including lead poisoning is a high index of suspicion on the part of the examining physician. As discussed in Section 2, lead can affect numerous organ systems and produce a wide array of signs and symptoms, most of which are non–specific and subtle in nature at least in the early stages of disease. Unless serious concern for lead toxicity is present, many of the early clues to diagnosis may easily be overlooked.

The crucial initial step in the medical evaluation is recognizing that a worker's employment can result in exposure to lead. The worker will frequently be able to define exposures to lead and lead containing materials

but often will not volunteer this information unless specifically asked. In other situations the worker may not know of any exposures to lead but the suspicion might be raised on the part of the physician because of the industry or occupation of the worker. Potential occupational exposure to lead and its compounds occur in many occupations in the construction industry, including demolition and salvaging operations, removal or encapsulation of materials containing lead, construction, alteration, repair or renovation of structures containing lead, transportation, disposal, storage or containment of lead or lead–containing materials on construction sites, and maintenance operations associated with construction activities.

Once the possibility for lead exposure is raised, the focus can then be directed toward eliciting information from the medical history, physical exam, and finally from laboratory data to evaluate the worker for potential lead toxicity.

A complete and detailed work history is important in the initial evaluation. A listing of all previous employment with information on job description, exposure to fumes or dust, known exposures to lead or other toxic substances, a description of any personal protective equipment used, and previous medical surveillance should all be included in the worker's record. Where exposure to lead is suspected, information concerning on–the–job personal hygiene, smoking or eating habits in work areas, laundry procedures, and use of any protective clothing or respiratory protection equipment should be noted. A complete work history is essential in the medical evaluation of a worker with suspected lead toxicity, especially when long term effects such as neurotoxicity and nephrotoxicity are considered.

The medical history is also of fundamental importance and should include a listing of all past and current medical conditions, current medications including proprietary drug intake, previous surgeries and hospitalizations, allergies, smoking history, alcohol consumption, and also non–occupational lead exposures such as hobbies (hunting, riflery). Also known childhood exposures should be elicited. Any previous history of hematological, neurological, gastrointestinal, renal, psychological, gynecological, genetic, or reproductive problems should be specifically noted.

A careful and complete review of systems must be performed to assess both recognized complaints and subtle or slowly acquired symptoms which the worker might not appreciate as being significant. The review of symptoms should include the following:

1. General – weight loss, fatigue, decreased appetite.

2. Head, Eyes, Ears, Nose, Throat (HEENT) – headaches, visual disturbances or decreased visual acuity, hearing deficits or tinnitus, pigmentation of the oral mucosa, or metallic taste in mouth.

3. Cardio–pulmonary – shortness of breath, cough, chest pains, palpitations, or orthopnea.

4. Gastrointestinal – nausea, vomiting, heartburn, abdominal pain, constipation or diarrhea.

5. Neurologic – irritability, insomnia, weakness (fatigue), dizziness, loss of memory, confusion, hallucinations, incoordination, ataxia, decreased strength in hands or feet, disturbances in gait, difficulty in climbing stairs, or seizures.

6. Hematologic – pallor, easy fatigability, abnormal blood loss, melena.

7. Reproductive (male and female and spouse where relevant) – history of infertility, impotence, loss of libido, abnormal menstrual periods, history of miscarriages, stillbirths, or children with birth defects.

8. Musculo–skeletal – muscle and joint pains.

The physical examination should emphasize the neurological, gastrointestinal, and cardiovascular systems. The worker's weight and blood pressure should be recorded and the oral mucosa checked for pigmentation characteristic of a possible Burtonian or lead line on the gingiva. It should be noted, however, that the lead line may not be present even in severe lead poisoning if good oral hygiene is practiced.

The presence of pallor on skin examination may indicate an anemia which, if severe, might also be associated with a tachycardia. If an anemia is suspected, an active search for blood loss should be undertaken including potential blood loss through the gastrointestinal tract.

A complete neurological examination should include an adequate mental status evaluation including a search for behavioral and psychological disturbances, memory testing, evaluation for irritability, insomnia, hallucinations, and mental clouding. Gait and coordination should be examined along with close observation for tremor. A detailed evaluation of peripheral nerve function including careful sensory and motor function testing is warranted. Strength testing particularly of extensor muscle groups of all extremities is of fundamental importance.

Cranial nerve evaluation should also be included in the routine examination.

The abdominal examination should include auscultation for bowel sounds and abdominal bruits and palpation for organomegaly, masses, and diffuse abdominal tenderness.

Cardiovascular examination should evaluate possible early signs of congestive heart failure. Pulmonary status should be addressed particularly if respirator protection is contemplated.

As part of the medical evaluation, the interim lead standard requires the following laboratory studies:

1. Blood lead level;

2. Hemoglobin and hematocrit determinations, red cell indices, and examination of the peripheral blood smear to evaluate red blood cell morphology;

3. Blood urea nitrogen;

4. Serum creatinine;

5. Routine urinalysis with microscopic examination;

6. A zinc protoporphyrin level.

In additional to the above, the physician is authorized to order any further laboratory or other tests which he or she deems necessary in accordance with sound medical practice. The evaluation must also include pregnancy testing or laboratory evaluation of male fertility if requested by the employee. Additional tests which are probably not warranted on a routine basis but may be appropriate when blood lead and ZPP levels are equivocal include delta aminolevulinic acid and coproporphyrin concentrations in the urine, and dark–field illumination for detection of basophilic stippling in red blood cells.

If an anemia is detected further studies including a careful examination of the peripheral smear, reticulocyte count, stool for occult blood, serum iron, total iron binding capacity, bilirubin, and, if appropriate, vitamin B12 and folate may be of value in attempting to identify the cause of the anemia.

If a peripheral neuropathy is suspected, nerve conduction studies are warranted both for diagnosis and as a basis to monitor any therapy.

If renal disease is questioned, a 24 hour urine collection for creatinine clearance, protein, and electrolytes may be indicated. Elevated uric acid levels may result from lead–induced renal disease and a serum uric acid level might be performed.

An electrocardiogram and chest x–ray may be obtained as deemed appropriate.

Sophisticated and highly specialized testing should not be done routinely and where indicated should be under the direction of a specialist.

IV. Laboratory Evaluation

The blood lead level at present remains the single most important test to monitor lead exposure and is the test used in the medical surveillance program under the lead standard to guide employee medical removal. The ZPP has several advantages over the blood lead level. Because of its relatively recent development and the lack of extensive data concerning its interpretation, the ZPP currently remains an ancillary test.

This section will discuss the blood lead level and ZPP in detail and will outline their relative advantages and disadvantages. Other blood tests currently available to evaluate lead exposure will also be reviewed.

The blood lead level is a good index of current or recent lead absorption when there is no anemia present and when the worker has not taken any chelating agents. However, blood lead levels along with urinary lead

levels do not necessarily indicate the total body burden of lead and are not adequate measures of past exposure. One reason for this is that lead has a high affinity for bone and up to 90% of the body's total lead is deposited there. A very important component of the total lead body burden is lead in soft tissue (liver, kidney, and brain). This fraction of the lead body burden, the biologically active lead, is not entirely reflected by blood lead levels since it is a function of the dynamics of lead absorption, distribution, deposition in bone and excretion. Following discontinuation of exposure to lead, the excess body burden is only slowly mobilized from bone and other relatively stable body stores and excreted. Consequently, a high blood lead level may only represent recent heavy exposure to lead without a significant total body excess and likewise a low blood lead level does not exclude an elevated total body burden of lead.

Also due to its correlation with recent exposures, the blood lead level may vary considerably over short time intervals.

To minimize laboratory error and erroneous results due to contamination, blood specimens must be carefully collected after thorough cleaning of the skin with appropriate methods using lead-free blood containers and analyzed by a reliable laboratory. Under the standard, samples must be analyzed in laboratories which are approved by OSHA. Analysis is to be made using atomic absorption spectrophotometry, anodic stripping voltammetry or any method which meets the accuracy requirements set forth by the standard.

The determination of lead in urine is generally considered a less reliable monitoring technique than analysis of whole blood primarily due to individual variability in urinary excretion capacity as well as the technical difficulty of obtaining accurate 24 hour urine collections. In addition, workers with renal insufficiency, whether due to lead or some other cause, may have decreased lead clearance and consequently urine lead levels may underestimate the true lead burden. Therefore, urine lead levels should not be used as a routine test.

The zinc protoporphyrin test, unlike the blood lead determination, measures an adverse metabolic effect of lead and as such is a better indicator of lead toxicity than the level of blood lead itself. The level of ZPP reflects lead absorption over the preceding 3 to 4 months, and therefore is a better indicator of lead body burden. The ZPP requires more time than the blood lead to read significantly elevated levels; the return to normal after discontinuing lead exposure is also slower. Furthermore, the ZPP test is simpler, faster, and less expensive to perform and no contamination is possible. Many investigators believe it is the most reliable means of monitoring chronic lead absorption.

Zinc protoporphyrin results from the inhibition of the enzyme ferrochelatase which catalyzes the insertion of an iron molecule into the protoporphyrin molecule, which then becomes heme. If iron is not inserted into the molecule then zinc, having a greater affinity for protoporphyrin, takes the place of the iron, forming ZPP.

An elevation in the level of circulating ZPP may occur at blood lead levels as low as 20–30 µg/dl in some workers. Once the blood lead level has reached 40 µg/dl there is more marked rise in the ZPP value from its normal range of less than 100 µg/dl100 ml. Increases in blood lead levels beyond 40 µg/100 g are associated with exponential increases in ZPP.

Whereas blood lead levels fluctuate over short time spans, ZPP levels remain relatively stable. ZPP is measured directly in red blood cells and is present for the cell's entire 120 day life-span. Therefore, the ZPP level in blood reflects the average ZPP production over the previous 3–4 months and consequently the average lead exposure during that time interval.

It is recommended that a hematocrit be determined whenever a confirmed ZPP of 50 µg/100 ml whole blood is obtained to rule out a significant underlying anemia. If the ZPP is in excess of 100 µg/100 ml and not associated with abnormal elevations in blood lead levels, the laboratory should be checked to be sure that blood leads were determined using atomic absorption spectrophotometry anodic stripping voltammetry, or any method which meets the accuracy requirements set forth by the standard by an OSHA approved laboratory which is experienced in lead level determinations. Repeat periodic blood lead studies should be obtained in all individuals with elevated ZPP levels to be certain that an associated elevated blood lead level has not been missed due to transient fluctuations in blood leads.

ZPP has a characteristic fluorescence spectrum with a peak at 594 nm which is detectable with a hematofluorimeter. The hematofluorimeter is accurate and portable and can provide on-site, instantaneous results for workers who can be frequently tested via a finger prick.

However, careful attention must be given to calibration and quality control procedures. Limited data on blood lead–ZPP correlations and the ZPP levels which are associated with the adverse health effects discussed in Section 2 are the major limitations of the test. Also it is difficult to correlate ZPP levels with environmental exposure and there is some variation of response with age and sex. Nevertheless, the ZPP promises to be an important diagnostic test for the early detection of lead toxicity and its value will increase as more data is collected regarding its relationship to other manifestations of lead poisoning.

Levels of delta-aminolevulinic acid (ALA) in the urine are also used as a measure of lead exposure. Increasing concentrations of ALA are believed to result from the inhibition of the enzyme delta-aminolevulinic acid dehydrase (ALA-D). Although the test is relatively easy to perform, inexpensive, and rapid, the disadvantages include variability in results, the necessity to collect a complete 24 hour urine sample which has a specific gravity greater than 1.010, and also the fact that ALA decomposes in the presence of light.

The pattern of porphyrin excretion in the urine can also be helpful in identifying lead intoxication. With lead poisoning, the urine concentrations of coproporphyrins I and II, porphobilinogen and uroporphyrin I rise. The most important increase, however, is that of coproporphyrin III; levels may exceed 5,000 µg/l in the urine in lead poisoned individuals, but its correlation with blood lead levels and ZPP are not as good as those of ALA. Increases in urinary porphyrins are not diagnostic of lead toxicity and may be seen in porphyria, some liver diseases, and in patients with high reticulocyte counts.

Summary. The standard for inorganic lead in the construction industry places significant emphasis on the medical surveillance of all workers exposed to levels of inorganic lead above 30 µg/m$^3$ TWA. The physician has a fundamental role in this surveillance program, and in the operation of the medical removal protection program.

Even with adequate worker education on the adverse health effects of lead and appropriate training in work practices, personal hygiene and other control measures, the physician has a primary responsibility for evaluating potential lead toxicity in the worker. It is only through a careful and detailed medical and work history, a complete physical examination and appropriate laboratory testing that an accurate assessment can be made. Many of the adverse health effects of lead toxicity are either irreversible or only partially reversible and therefore early detection of disease is very important.

This document outlines the medical monitoring program as defined by the occupational safety and health standard for inorganic lead. It reviews the adverse health effects of lead poisoning and describes the important elements of the history and physical examinations as they relate to these adverse effects. Finally, the appropriate laboratory testing for evaluating lead exposure and toxicity is presented.

It is hoped that this review and discussion will give the physician a better understanding of the OSHA standard with the ultimate goal of protecting the health and well-being of the worker exposed to lead under his or her care.

## Appendix D to § 1532.1 — Qualitative and Quantitative Fit Test Protocols

[See Section 5144, Appendix A]

### § 1532.2. Chromium (VI).

(a) Scope.

(1) This standard applies to occupational exposures to chromium (VI) in all forms and compounds in construction, except:

(2) Exposures that occur in the application of pesticides regulated by the California Department of Pesticide Regulation, the U.S. Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives);

(3) Exposures to portland cement; or

(4) Where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 $\mu g/m^3$ as an 8-hour time-weighted average (TWA) under any expected conditions of use.

NOTE: Exposures to strontium chromate shall comply with the provisions of Section 5155 in addition to this standard.

(b) Definitions. For the purposes of this section the following definitions apply:

Action level means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).

Chromium (VI) [hexavalent chromium or Cr(VI)] means chromium with a valence of positive six, in any form and in any compound.

Emergency means any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI). If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency.

Employee exposure means the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

High efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono dispersed particles of 0.3 micrometers in diameter or larger.

Historical monitoring data means data from chromium (VI) monitoring conducted prior to September 19, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Objective data means information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] is an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by subsection (i) of this section.

"This section" means this 1532.2 Chromium (VI) standard.

(c) Permissible exposure limit (PEL). The employer shall ensure that no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 $\mu g/m^3$), calculated as an 8-hour time-weighted average (TWA).

(d) Exposure determination.

(1) General. Each employer who has a workplace or work operation covered by this section shall determine the 8-hour TWA exposure for each employee exposed to chromium (VI). This determination shall be made in accordance with either subsection (d)(2) or subsection (d)(3) of this section.

(2) Scheduled monitoring option.

(A) The employer shall perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area. Where an employer does representative sampling instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

(B) If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(C) If monitoring reveals employee exposures to be at or above the action level, the employer shall perform periodic monitoring at least every six months.

(D) If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

(E) If periodic monitoring indicates that employee exposures are below the action level, and the result is confirmed by the result of another monitoring taken at least seven days later, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(F) The employer shall perform additional monitoring when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI), or when the employer has any reason to believe that new or additional exposures have occurred.

(3) Performance-oriented option. The employer shall determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

(4) Employee notification of determination results.

(A) Where the exposure determination indicates that employee exposure exceeds the PEL, as soon as possible but not more than 5 working days later the employer shall either post the results in an appropriate location that is accessible to all affected employees or shall notify each affected employee individually in writing of the results.

(B) Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

(5) Accuracy of measurement. Where air monitoring is performed to comply with the requirements of this section, the employer shall use a method of monitoring and analysis that can measure chromium (VI) to within an accuracy of plus or minus 25 percent (+/- 25%) and can produce accurate measurements to within a statistical confidence level of 95 percent for airborne concentrations at or above the action level.

(6) Observation of monitoring.

(A) Where air monitoring is performed to comply with the requirements of this section, the employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to chromium (VI).

(B) When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required, the employer shall provide the observer with clothing and equipment and shall assure that the observer uses such clothing and equipment and complies with all other applicable safety and health procedures.

(e) Methods of compliance.

(1) Engineering and work practice controls.

(A) Except as permitted in subsection (e)(1)(B) of this section, the employer shall use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless the employer can demonstrate that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall use them to reduce employee exposure to the lowest levels achievable, and shall supplement them by the use of respiratory protection that complies with the requirements of subsection (f) of this section.

(B) Where the employer can demonstrate that a process or task does not result in any employee exposure to chromium (VI) above the PEL for 30 or more days per year (12 consecutive months), the requirement to im-

plement engineering and work practice controls to achieve the PEL does not apply to that process or task.

(2) Prohibition of rotation. The employer shall not rotate employees to different jobs to achieve compliance with the PEL.

(f) Respiratory protection.

(1) General. The employer shall provide respiratory protection for employees during:

(A) Periods necessary to install or implement feasible engineering and work practice controls;

(B) Work operations, such as maintenance and repair activities, for which engineering and work practice controls are not feasible;

(C) Work operations for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL;

(D) Work operations where employees are exposed above the PEL for fewer than 30 days per year, and the employer has elected not to implement engineering and work practice controls to achieve the PEL; or

(E) Emergencies.

(2) Respiratory protection program. Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with Section 5144.

(g) Protective work clothing and equipment.

(1) Provision and use. Where a hazard is present or is likely to be present from skin or eye contact with chromium (VI), the employer shall provide appropriate personal protective clothing and equipment at no cost to employees, and shall ensure that employees use such clothing and equipment.

(2) Removal and storage.

(A) The employer shall ensure that employees remove all protective clothing and equipment contaminated with chromium (VI) at the end of the work shift or at the completion of their tasks involving chromium (VI) exposure, whichever comes first.

(B) The employer shall ensure that no employee removes chromium (VI)–contaminated protective clothing or equipment from the workplace, except for those employees whose job it is to launder, clean, maintain, or dispose of such clothing or equipment.

(C) When contaminated protective clothing or equipment is removed for laundering, cleaning, maintenance, or disposal, the employer shall ensure that it is stored and transported in sealed, impermeable bags or other closed, impermeable containers.

(D) Bags or containers of contaminated protective clothing or equipment that are removed from change rooms for laundering, cleaning, maintenance, or disposal shall be labeled in accordance with the requirements of the Hazard Communication Standard, Section 5194.

(3) Cleaning and replacement.

(A) The employer shall clean, launder, repair and replace all protective clothing and equipment required by this section as needed to maintain its effectiveness.

(B) The employer shall prohibit the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperses chromium (VI) into the air or onto an employee's body.

(C) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with chromium (VI) of the potentially harmful effects of exposure to chromium (VI) and that the clothing and equipment should be laundered or cleaned in a manner that minimizes skin or eye contact with chromium (VI) and effectively prevents the release of airborne chromium (VI) in excess of the PEL.

(h) Hygiene areas and practices.

(1) General. Where protective clothing and equipment is required, the employer shall provide change rooms in conformance with Section 3367. Where skin contact with chromium (VI) occurs, the employer shall provide washing facilities in conformance with Section 1527. Eating and drinking areas provided by the employer shall be in conformance with Section 3368.

(2) Change rooms. The employer shall assure that change rooms are equipped with separate storage facilities for protective clothing and equipment and for street clothes, and that these facilities prevent cross-contamination.

(3) Washing facilities.

(A) The employer shall provide readily accessible washing facilities capable of removing chromium (VI) from the skin, and shall ensure that affected employees use these facilities when necessary.

(B) The employer shall ensure that employees who have skin contact with chromium (VI) wash their hands and faces at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.

(4) Eating and drinking areas.

(A) Whenever the employer allows employees to consume food or beverages at a worksite where chromium (VI) is present, the employer shall ensure that eating and drinking areas and surfaces are maintained as free as practicable of chromium (VI).

(B) The employer shall ensure that employees do not enter eating and drinking areas with protective work clothing or equipment unless surface chromium (VI) has been removed from the clothing and equipment by methods that do not disperse chromium (VI) into the air or onto an employee's body.

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in areas where skin or eye contact with chromium (VI) occurs; or carry the products associated with these activities, or store such products in these areas.

(i) Medical surveillance.

(1) General.

(A) The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for all employees:

1. Who are or may be occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year;

2. Experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or

3. Exposed in an emergency.

(B) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP.

(2) Frequency. The employer shall provide a medical examination:

(A) Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this subsection within the last twelve months;

(B) Annually;

(C) Within 30 days after a PLHCP's written medical opinion recommends an additional examination;

(D) Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure;

(E) Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI); or

(F) At the termination of employment, unless the last examination that satisfied the requirements of subsection (i) of this section was less than six months prior to the date of termination.

(3) Contents of examination. A medical examination consists of:

(A) A medical and work history, with emphasis on: past, present, and anticipated future exposure to chromium (VI); any history of respiratory system dysfunction; any history of asthma, dermatitis, skin ulceration, or nasal septum perforation; and smoking status and history;

(B) A physical examination of the skin and respiratory tract; and

(C) Any additional tests deemed appropriate by the examining PLHCP.

(4) Information provided to the PLHCP. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the following information:

(A) A description of the affected employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to chromium (VI);

(B) The employee's former, current, and anticipated levels of occupational exposure to chromium (VI);

(C) A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used that equipment; and

(D) Information from records of employment-related medical examinations previously provided to the affected employee, currently within the control of the employer.

(5) PLHCP's written medical opinion.

(A) The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains:

1. The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI);

2. Any recommended limitations upon the employee's exposure to chromium (VI) or upon the use of personal protective equipment such as respirators;

3. A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to chromium (VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment.

(B) The PLHCP shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to chromium (VI).

(C) The employer shall provide a copy of the PLHCP's written medical opinion to the examined employee within two weeks after receiving it.

(j) Communication of chromium (VI) hazards to employees.

(1) General. In addition to the requirements of the Hazard Communication Standard, Section 5194, employers shall comply with the following requirements.

(2) Employee information and training.

(A) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

1. The contents of this section; and

2. The purpose and a description of the medical surveillance program required by subsection (i) of this section.

(B) The employer shall make a copy of this section readily available without cost to all affected employees.

(k) Recordkeeping.

(1) Air monitoring data.

(A) The employer shall maintain an accurate record of all air monitoring conducted to comply with the requirements of this section.

(B) This record shall include at least the following information:

1. The date of measurement for each sample taken;

2. The operation involving exposure to chromium (VI) that is being monitored;

3. Sampling and analytical methods used and evidence of their accuracy;

4. Number, duration, and the results of samples taken;

5. Type of personal protective equipment, such as respirators worn; and

6. Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

(C) The employer shall ensure that exposure records are maintained and made available in accordance with Section 3204.

(2) Historical monitoring data.

(A) Where the employer has relied on historical monitoring data to determine exposure to chromium (VI), the employer shall establish and maintain an accurate record of the historical monitoring data relied upon.

(B) The record shall include information that reflects the following conditions:

1. The data were collected using methods that meet the accuracy requirements of subsection (d)(5) of this section;

2. The processes and work practices that were in use when the historical monitoring data were obtained are essentially the same as those to be used during the job for which exposure is being determined;

3. The characteristics of the chromium (VI) containing material being handled when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined;

4. Environmental conditions prevailing when the historical monitoring data were obtained are the same as those on the job for which exposure is being determined; and

5. Other data relevant to the operations, materials, processing, or employee exposures covered by the exception.

(C) The employer shall ensure that historical exposure records are maintained and made available in accordance with Section 3204.

(3) Objective data.

(A) The employer shall maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

(B) This record shall include at least the following information:

1. The chromium containing material in question;

2. The source of the objective data;

3. The testing protocol and results of testing, or analysis of the material for the release of chromium (VI);

4. A description of the process, operation, or activity and how the data support the determination; and

5. Other data relevant to the process, operation, activity, material, or employee exposures.

(C) The employer shall ensure that objective data are maintained and made available in accordance with Section 3204.

(4) Medical surveillance.

(A) The employer shall establish and maintain an accurate record for each employee covered by medical surveillance under subsection (i) of this section.

(B) The record shall include the following information about the employee:

1. Name and social security number;

2. A copy of the PLHCP's written opinions;

3. A copy of the information provided to the PLHCP as required by subsection (i)(4) of this section.

(C) The employer shall ensure that medical records are maintained and made available in accordance with Section 3204.

(*l*) Dates.

(1) For employers with 20 or more employees, all obligations of this section, except engineering controls required by subsection (e) of this section, commence November 27, 2006.

(2) For employers with 19 or fewer employees, all obligations of this section, except engineering controls required by subsection (e) of this section, commence May 30, 2007.

(3) For all employers, engineering controls required by subsection (e) of this section shall be implemented no later than May 31, 2010.

(m) Reporting requirements. See Section 5203.

NOTE: Authority cited: Sections 142.3, 9020, 9030 and 9040, Labor Code. Reference: Sections 142.3, 9004(d), 9009, 9020, 9030, 9031 and 9040, Labor Code.

HISTORY

1. New section filed 9-19-2006; operative 9-19-2006. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2006, No. 38).
2. New subsection (m) and amendment of NOTE filed 10-30-2007; operative 11-29-2007 (Register 2007, No. 44).

### § 1533. Internal Combustion Engines.

(a) Internal combustion engine-driven equipment shall be operated inside buildings or enclosed structures only when such operation does not result in exposure to dangerous gases or fumes in concentrations above the maximum acceptable limits listed in the General Industry Safety Orders. Some acceptable methods of control are:

(1) Piping exhaust gases to the outside atmosphere.

(2) Providing a system of building ventilation that dilutes and removes exhaust products to outside atmosphere.

(3) Installing effective, catalyst-type exhaust treatment units on the engines.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 12-13-84; effective thirtieth day thereafter (Register 84, No. 50).

## § 1534. Flammable Vapors.

(a) Flammable vapors shall be controlled so as to avoid hazard to workers.

(b) No source of ignition such as smoking, gas pilot lights, or operating electrical equipment, other than explosion-proof or equivalent, shall be allowed in a room or building when hazardous concentrations of flammable vapors are present.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 12-13-84; effective thirtieth day thereafter (Register 84, No. 50).

## § 1535. Methylenedianiline.

(a) Scope and application.

(1) This section applies to all construction work in which there is exposure to MDA, including but not limited to the following:

(A) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain MDA;

(B) Installation or the finishing of surfaces with products containing MDA;

(C) MDA spill/emergency cleanup at construction sites; and

(D) Transportation, disposal, storage, or containment of MDA or products containing MDA on the site or location at which construction activities are performed.

(2) Except as provided in subsections (a)(7) and (f)(5), this section does not apply to the processing, use, and handling of products containing MDA where initial monitoring indicates that the product is not capable of releasing MDA in excess of the action level under the expected conditions of processing, use, and handling which will cause the greatest possible release; and where no "dermal exposure to MDA" can occur.

(3) Except as provided in subsection (a)(7), this section does not apply to the processing, use, and handling of products containing MDA where objective data are reasonably relied upon which demonstrate the product is not capable of releasing MDA under the expected conditions of processing, use, and handling which will cause the greatest possible release; and where no "dermal exposure to MDA" can occur.

(4) Except as provided in subsection (a)(7), this section does not apply to the storage, transportation, distribution or sale of MDA in intact containers sealed in such a manner as to contain the MDA dusts, vapors, or liquids, except for the provisions of section 5194 and subsection (e)

(5) Except as provided in subsection (a)(7), this section does not apply to materials in any form which contain less than 0.1% MDA by weight or volume.

(6) Except as provided in subsection (a)(7), this section does not apply to "finished articles containing MDA."

(7) Where products containing MDA are exempted under subsections (a)(2) through (a)(6), the employer shall maintain records of the initial monitoring results or objective data supporting that exemption and the basis for the employer's reliance on the data, as provided in the record-keeping provision of subsection (o).

(b) Definitions. For the purpose of this section, the following definitions shall apply:

Action level means a concentration of airborne MDA of 5 ppb as an eight (8)-hour time-weighted average.

Authorized person means any person specifically authorized by the employer whose duties require the person to enter a regulated area, or any person entering such an area as a designated representative of employees for the purpose of exercising the right to observe monitoring and measuring procedures under subsection (p), or any other person authorized by the Act or regulations issued under the Act.

Chief means the Chief of the Division of Occupational Safety and Health, or designee.

Container means any barrel, bottle, can, cylinder, drum, reaction vessel, storage tank, commercial packaging or the like, but does not include piping systems.

Decontamination area means an area outside of but as near as practical to the regulated area, consisting of an equipment storage area, wash area, and clean change area, which is used for the decontamination of workers, materials, and equipment contaminated with MDA.

Dermal exposure to MDA occurs where employees are engaged in the handling, application or use of mixtures or materials containing MDA, with any of the following non-airborne forms of MDA:

(A) Liquid, powdered, granular, or flaked mixtures containing MDA in concentrations greater than 0.1% by weight or volume; and

(B) Materials other than "finished articles" containing MDA in concentrations greater than 0.1% by weight or volume.

Emergency means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which results in an unexpected and potentially hazardous release of MDA.

Employee exposure means exposure to MDA which would occur if the employee were not using respirators or protective work clothing and equipment.

Finished article containing MDA is defined as a manufactured item:

(A) Which is formed to a specific shape or design during manufacture;

(B) Which has end use function(s) dependent in whole or part upon its shape or design during end use; and

(C) Where applicable, is an item which is fully cured by virtue of having been subjected to the conditions (temperature and time) necessary to complete the desired chemical reaction.

Historical monitoring data means monitoring data for construction jobs that meet the following conditions:

(A) The data upon which judgments are based are scientifically sound and were collected using methods that are sufficiently accurate and precise;

(B) The processes and work practices that were in use when the historical monitoring data were obtained are essentially the same as those to be used during the job for which initial monitoring will not be performed;

(C) The characteristics of the MDA-containing material being handled when the historical monitoring data were obtained are the same as those on the job for which initial monitoring will not be performed;

(D) Environmental conditions prevailing when the historical monitoring data were obtained are the same as those on the job for which initial monitoring will not be performed; and

(E) Other data relevant to the operations, materials, processing, or employee exposures covered by the exception are substantially similar. The data must be scientifically sound, the characteristics of the MDA containing material must be similar and the environmental conditions comparable.

4,4′ Methylenedianiline or MDA means the chemical, 4,4′-diaminodiphenylmethane, Chemical Abstract Service Registry number 101-77-9 in the form of a vapor, liquid, or solid. The definition also includes the salts of MDA.

NIOSH means the director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

Regulated areas means areas where airborne concentrations of MDA exceed or can reasonably be expected to exceed, the permissible exposure limits, or where "dermal exposure to MDA" can occur.

STEL means short term exposure limit as determined by any 15- minute sample period.

(c) Permissible exposure limits. The employer shall assure that no employee is exposed to an airborne concentration of MDA in excess of ten

parts per billion (10 ppb) as an 8-hour time-weighted average and a STEL of one hundred parts per billion (100 ppb).

(d) Communication among employers. On multi-employer worksites, an employer performing work involving the application of MDA or materials containing MDA for which establishment of one or more regulated areas is required shall inform other employers on the site of the nature of the employer's work with MDA and of the existence of, and requirements pertaining to, regulated areas.

(e) Emergency situations.

(1) Written plan.

(A) A written plan for emergency situations shall be developed for each construction operation where there is a possibility of an emergency. The plan shall include procedures where the employer identifies emergency escape routes for his employees at each construction site before the construction operation begins. Appropriate portions of the plan shall be implemented in the event of an emergency.

(B) The plan shall specifically provide that employees engaged in correcting emergency conditions shall be equipped with the appropriate personal protective equipment and clothing as required in subsections (i) and (j) until the emergency is abated.

(C) The plan shall specifically include provisions for alerting and evacuating affected employees as well as the applicable elements prescribed in section 3220.

(2) Alerting employees. Where there is the possibility of employee exposure to MDA due to an emergency means shall be developed to promptly alert employees who have the potential to be directly exposed. Affected employees not engaged in correcting emergency conditions shall be evacuated immediately in the event that an emergency occurs. Means shall also be developed for alerting other employees who may be exposed as a result of the emergency.

(f) Exposure monitoring.

(1) General.

(A) Determinations of employee exposure shall be made from breathing zone air samples that are representative of each employee's exposure to airborne MDA over an eight (8) hour period. Determination of employee exposure to the STEL shall be made from breathing zone air samples collected over a 15 minute sampling period.

(B) Representative employee exposure shall be determined on the basis of one or more samples representing full shift exposure for each shift for each job classification in each work area where exposure to MDA may occur.

(C) Where the employer can document that exposure levels are equivalent for similar operations in different work shifts, the employer shall only be required to determine representative employee exposure for that operation during one shift.

(2) Initial-monitoring. Each employer who has a workplace or work operation covered by this standard shall perform initial monitoring to determine accurately the airborne concentrations of MDA to which employees may be exposed unless:

(A) the employer can demonstrate, on the basis of objective data, that the MDA-containing product or material being handled cannot cause exposures above the standard's action level, even under worst-case release conditions; or

(B) the employer has historical monitoring or other data demonstrating that exposures on a particular job will be below the action level.

(3) Periodic monitoring and monitoring frequency.

(A) If the monitoring required by subsection (f)(2) reveals employee exposure at or above the action level, but at or below the PELs, the employer shall repeat such monitoring for each such employee at least every six (6) months.

(B) If the monitoring required by subsection(f)(2) reveals employee exposure above the PELs, the employer shall repeat such monitoring for each such employee at least every three (3) months.

(C) Employers who are conducting MDA operations within a regulated area can forego periodic monitoring if the employees are all wearing supplied-air respirators while working in the regulated area.

(D) The employer may alter the monitoring schedule from every three months to every six months for any employee for whom two consecutive measurements taken at least 7 days apart indicate that the employee exposure has decreased to below the PELs but above the action level.

(4) Termination of monitoring.

(A) If the initial monitoring required by subsection (f)(2) reveals employee exposure to be below the action level, the employer may discontinue the monitoring for that employee, except as otherwise required by subsection (f)(5).

(B) If the periodic monitoring required by subsection (f)(3) reveals that employee exposures, as indicated by at least two consecutive measurements taken at least 7 days apart, are below the action level the employer may discontinue the monitoring for that employee, except as otherwise required by subsection (f)(5).

(5) Additional monitoring. The employer shall institute the exposure monitoring required under subsections (f)(2) and (f)(3) when there has been a change in production process, chemicals present, control equipment, personnel, or work practices which may result in new or additional exposures to MDA, or when the employer has any reason to suspect a change which may result in new or additional exposures.

(6) Accuracy of monitoring. Monitoring shall be accurate, to a confidence level of 95 percent, to within plus or minus 25 percent for airborne concentrations of MDA.

(7) Employee notification of monitoring results.

(A) The employer shall, within 5 working days after the receipt of the results of any monitoring performed under this standard, notify each employee of these results, in writing, either individually or by posting of results in an appropriate location that is accessible to affected employees.

(B) The written notification required by subsection (f)(7)(A) shall contain the corrective action being taken by the employer or any other protective measures which have been implemented to reduce the employee exposure to or below the PELs, wherever the PELs are exceeded.

(8) Visual monitoring. The employer shall make routine inspections of employee hands, face and forearms potentially exposed to MDA. Other potential dermal exposures reported by the employee must be referred to the appropriate medical personnel for observation. If the employer determines that the employee has been exposed to MDA the employer shall:

(A) Determine the source of exposure;

(B) Implement protective measures to correct the hazard; and

(C) Maintain records of the corrective actions in accordance with subsection (n).

(g) Regulated areas.

(1) Establishment.

(A) Airborne exposures. The employer shall establish regulated areas where airborne concentrations of MDA exceed or can reasonably be expected to exceed, the permissible exposure limits.

(B) Dermal exposures. Where employees are subject to "dermal exposure to MDA" the employer shall establish those work areas as regulated areas.

(2) Demarcation. Regulated areas shall be demarcated from the rest of the workplace in a manner that minimizes the number of persons potentially exposed.

(3) Access. Access to regulated areas shall be limited to authorized persons.

(4) Personal protective equipment and clothing. Each person entering a regulated area shall be supplied with, and required to use, the appropriate personal protective clothing and equipment in accordance with subsections (i) and (j).

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas.

(h) Methods of compliance.

(1) Engineering controls and work practices and respirators.

(A) The employer shall use one or any combination of the following control methods to achieve compliance with the permissible exposure limits prescribed by subsection (c):

1. Local exhaust ventilation equipped with HEPA filter dust collection systems;

2. General ventilation systems;

3. Use of work practices; or

4. Other engineering controls such as isolation and enclosure that the Chief can show to be feasible.

(B) Wherever the feasible engineering controls and work practices which can be instituted are not sufficient to reduce employee exposure to or below the PELs, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protective devices which comply with the requirements of subsection (i).

(2) Special Provisions. For workers engaged in spray application methods, respiratory protection must be used in addition to feasible engineering controls and work practices to reduce employee exposure to or below the PELs.

(3) Prohibitions. Compressed air shall not be used to remove MDA, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

(4) Employee rotation. The employer shall not use employee rotation as a means of compliance with the exposure limits prescribed in subsection (c).

(5) Compliance program.

(A) The employer shall establish and implement a written program to reduce employee exposure to or below the PELs by means of engineering and work practice controls, as required by subsection (h)(1), and by use of respiratory protection where permitted under this section.

(B) Upon request this written program shall be furnished for examination and copying to the Chief, NIOSH, affected employees and designated employee representatives. The employer shall review and, as necessary, update such plans at least once every 12 months to make certain they reflect the current status of the program.

(i) Respiratory protection.

(1) General. For employees who use respirators required by this section, the employer must provide respirators that comply with the requirements of this subsection. Respirators must be used during:

(A) Period necessary to install or implement feasible engineering and work practice controls;

(B) Work operations such as maintenance and repair activities and spray application processes for which engineering and work practice controls are not feasible;

(C) Work operations for which feasible engineering and work practice controls are not yet sufficient to reduce exposure to or below the PELs; and

(D) Emergencies.

(2) Respirator program. The employer must implement a respiratory protection program in accordance with section 5144(b) (except (d)(1)(C)) through (m).

(3) Respirator selection.

(A) The employer must select, and provide to employees, the appropriate respirators specified in Section 5144(d)(3)(A)1.

(B) An employee who cannot wear a negative pressure respirator shall be given the option of wearing a positive pressure respirator or a supplied-air respirator operated in the continuous flow or pressure demand mode.

(C) Employers shall provide HEPA filters for powered and non-powered air-purifying respirators.

(D) For escape, employers shall provide employees with one of the following respirator options: any self-contained breathing apparatus with a full facepiece or hood operated in the positive-pressure or continuous-flow mode; or a full facepiece air-purifying respirator.

(E) Employers shall provide a combination HEPA filter and organic vapor canister or cartridge with air-purifying respirators when MDA is in liquid form or used as part of a process requiring heat.

(j) Protective work clothing and equipment.

(1) Provision and use. Where employees are subject to dermal exposure to MDA, where liquids containing MDA can be splashed into the eyes, or where airborne concentrations of MDA are in excess of the PEL, the employer shall provide, at no cost to the employee, and ensure that the employee uses, appropriate protective work clothing and equipment which prevent contact with MDA such as, but not limited to:

(A) Aprons, coveralls or other full-body work clothing;

(B) Gloves, head coverings, and foot coverings; and

(C) Face shields, chemical goggles; or

(D) Other appropriate protective equipment which comply with section 1516.

(2) Removal and storage.

(A) The employer shall ensure that, at the end of their work shift, employees remove MDA-contaminated protective work clothing and equipment that is not routinely removed throughout the day in change areas provided in accordance with the provisions in subsection (k).

(B) The employer shall ensure that, during their work shift, employees remove all other MDA-contaminated protective work clothing or equipment before leaving a regulated area.

(C) The employer shall ensure that no employee takes MDA-contaminated work clothing or equipment out of the decontamination areas, except those employees authorized to do so for the purpose of laundering, maintenance, or disposal.

(D) MDA-contaminated work clothing or equipment shall be placed and stored and transported in sealed, impermeable bags, or other closed impermeable containers.

(E) Containers of MDA-contaminated protective work clothing or equipment which are to be taken out of decontamination areas or the workplace for cleaning, maintenance, or disposal, shall bear labels warning of the hazards of MDA.

(3) Cleaning and replacement.

(A) The employer shall provide the employee with clean protective clothing and equipment. The employer shall ensure that protective work clothing or equipment required by this subsection is cleaned, laundered, repaired, or replaced at intervals appropriate to maintain its effectiveness.

(B) The employer shall prohibit the removal of MDA from protective work clothing or equipment by blowing, shaking, or any methods which allow MDA to re-enter the workplace.

(C) The employer shall ensure that laundering of MDA-contaminated clothing shall be done so as to prevent the release of MDA in the workplace.

(D) Any employer who gives MDA-contaminated clothing to another person for laundering shall inform such person of the requirement to prevent the release of MDA.

(E) The employer shall inform any person who launders or cleans protective clothing or equipment contaminated with MDA of the potentially harmful effects of exposure.

(4) Visual Examination.

(A) The employer shall ensure that employees' work clothing is examined periodically for rips or tears that may occur during performance of work.

(B) When rips or tears are detected, the protective equipment or clothing shall be repaired and replaced immediately.

(k) Hygiene facilities and practices.

(1) General.

(A) The employer shall provide decontamination areas for employees required to work in regulated areas or required by subsection (j)(1) to wear protective clothing. Exception: In lieu of the decontamination area requirement specified in subsection (k)(1)(A), the employer may permit employees engaged in small scale, short duration operations, to clean their protective clothing or dispose of the protective clothing before such employees leave the area where the work was performed.

(B) Change areas. The employer shall ensure that chance areas are equipped with separate storage facilities for protective clothing and street clothing, in accordance with section 3366(f).

(C) Equipment area. The equipment area shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective clothing and equipment.

(2) Shower area.

(A) Where feasible, shower facilities shall be provided which comply with section 3366(f) wherever the possibility of employee exposure to airborne levels of MDA in excess of the permissible exposure limit exists.

(B) Where dermal exposure to MDA occurs, the employer shall ensure that materials spilled or deposited on the skin are removed as soon as possible by methods which do not facilitate the dermal absorption of MDA.

(3) Lunch Areas.

(A) Whenever food or beverages are consumed at the worksite and employees are exposed to MDA the employer shall provide clean lunch areas were MDA levels are below the action level and where no dermal exposure to MDA can occur.

(B) The employer shall ensure that employees wash their hands and faces with soap and water prior to eating, drinking, smoking, or applying cosmetics.

(C) The employer shall ensure that employees do not enter lunch facilities with contaminated protective work clothing or equipment.

*(l)* Communication of hazards to employees.

(1) Signs and labels.

(A) The employer shall post and maintain legible signs demarcating regulated areas and entrances or accessways to regulated areas that bear the following legend:

DANGER
MDA
MAY CAUSE CANCER
LIVER TOXIN
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
MAY BE REQUIRED TO BE WORN IN THIS AREA

(B) The employer shall ensure that labels or other appropriate forms of warning are provided for containers of MDA within the workplace. The labels shall comply with the requirements of section 5194(f) and shall include one of the following legends:

1. For pure MDA:

DANGER
CONTAINS MDA
MAY CAUSE CANCER
LIVER TOXIN

2. For mixtures containing MDA:

DANGER
CONTAINS MDA
CONTAINS MATERIALS WHICH MAY CAUSE CANCER
LIVER TOXIN

(2) Material safety data sheets (MSDS). Employers shall obtain or develop, and shall provide access to their employees, to a material safety data sheet (MSDS) for MDA.

(3) Information and training.

(A) The employer shall provide employees with information and training on MDA, in accordance with section 5194(h), at the time of initial assignment and at least annually thereafter.

(B) In addition to the information required under section 5194 the employer shall:

1. Provide an explanation of the contents of this section, including appendices A and B, and indicate to employees where a copy of the standard is available;

2. Describe the medical surveillance program required under subsection (n), and explain the information contained in Appendix C of the section; and

3. Describe the medical removal provision required under subsection (n).

(4) Access to training materials.

(A) The employer shall make readily available to all affected employees, without cost, all written materials relating to the employee training program, including a copy of this regulation.

(B) The employer shall provide to the Chief and NIOSH, upon request, all information and training materials relating to the employee information and training program.

(m) Housekeeping.

(1) All surfaces shall be maintained as free as practicable of visible accumulations of MDA.

(2) The employer shall institute a program for detecting MDA leaks, spills, and discharges, including regular visual inspections of operations involving liquid or solid MDA.

(3) All leaks shall be repaired and liquid or dust spills cleaned up promptly.

(4) Surfaces contaminated with MDA may not be cleaned by the use of compressed air.

(5) Shoveling, dry sweeping, and other methods of dry clean-up of MDA may be used where HEPA filtered vacuuming and/or wet cleaning are not feasible or practical.

(6) Waste, scrap, debris, bags, containers, equipment, and clothing contaminated with MDA shall be collected and disposed of in a manner to prevent the re-entry of MDA into the workplace.

(n) Medical surveillance.

(1) General.

(A) The employer shall make available a medical surveillance program for employees exposed to MDA under the following circumstances:

1. Employees exposed at or above the action level for 30 or more days per year;

2. Employees who are subject to dermal exposure to MDA for 15 or more days per year;

3. Employees who have been exposed in an emergency situation;

4. Employees whom the employer, based on results from compliance with subsection (f)(8), has reason to believe are being dermally exposed; and

5. Employees who show signs or symptoms of MDA exposure.

(B) The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician at a reasonable time and place, and provided without cost to the employee.

(2) Initial examinations.

(A) Within 150 days of the effective date of this standard, or before the time of initial assignment, the employer shall provide each employee covered by subsection (n)(1)(A) with a medical examination including the following elements:

1. A detailed history which includes:

a. Past work exposure to MDA or any other toxic substances;

b. A history of drugs, alcohol, tobacco, and medication routinely taken (duration and quantity); and

c. A history of dermatitis, chemical skin sensitization, or previous hepatic disease.

2. A physical examination which includes all routine physical examination parameters, skin examination, and examination for signs of liver disease.

3. Laboratory tests including:

a. Liver function tests; and

b. Urinalysis.

4. Additional tests as necessary in the opinion of the physician.

(B) No initial medical examination is required if adequate records show that the employee has been examined in accordance with the requirements within the previous six months prior to the effective date of this standard or prior to the date of initial assignment.

(3) Periodic examinations.

(A) The employer shall provide each employee covered by this section with a medical examination at least annually following the initial examination. These periodic examinations shall include at least the following elements:

1. A brief history regarding any new exposure to potential liver toxins, changes in drug, tobacco, and alcohol intake, and the appearance of physical signs relating to the liver, and the skin;

2. The appropriate tests and examinations including liver function tests and skin examinations; and

3. Appropriate additional tests or examinations as deemed necessary by the physician.

(B) If in the physician's opinion the results of liver function tests indicate an abnormality, the employee shall be removed from further MDA exposure in accordance with subsection (n)(9). Repeat liver function tests shall be conducted on advice of the physician.

(4) Emergency examinations. If the employer determines that the employee has been exposed to a potentially hazardous amount of MDA in an emergency situation under subsection (e), the employer shall provide medical examinations in accordance with subsection (n)(3)(A) and (B). If the results of liver function testing indicate an abnormality, the employee shall be removed in accordance with subsection (n)(9). Repeat liver function tests shall be conducted on the advice of the physician. If the results of the tests are normal, tests must be repeated two to three weeks from the initial testing. If the results of the second set of tests are normal and on the advice of the physician, no additional testing is required.

(5) Additional examinations. Where the employee develops signs and symptoms associated with exposure to MDA, the employer shall provide the employee with an additional medical examination including liver function tests. Repeat liver function tests shall be conducted on the advice of the physician. If the results of the tests are normal, tests must be repeated two to three weeks from the initial testing. If the results of the second set of tests are normal and on the advice of the physician, no additional testing is required.

(6) Multiple physician review mechanism.

(A) If the employer selects the initial physician who conducts any medical examination or consultation provided to an employee under this section, and the employee has signs or symptoms of occupational exposure to MDA (which could include an abnormal liver function test), and the employee disagrees with the opinion of the examining physician, and this opinion could affect the employee's job status the employee may designate an appropriate and mutually acceptable second physician:

1. To review any findings determinations or recommendations of the initial physician; and

2. To conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

(B) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician's written opinion, whichever is later:

1. The employee informing the employer that he or she intends to seek a second medical opinion, and

2. The employee initiating steps to make an appointment with a second physician.

(C) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

(D) If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee through their respective physicians shall designate a third physician:

1. To review any findings, determinations, or recommendations of the prior physicians; and

2. To conduct such examinations, consultations, laboratory tests and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians.

(E) The employer shall act consistent with the findings, determinations, and recommendations of the second physician, unless the employer and the employee reach a mutually acceptable agreement.

(7) Information provided to the examining physician.

(A) The employer shall provide the following information to the examining physician:

1. A copy of this regulation and its appendices;

2. A description of the affected employee's duties as they relate to the employee's potential exposure to MDA;

3. The employee's current actual or representative MDA exposure level;

4. A description of any personal protective equipment used or to be used; and

5. Information from previous employment related medical examinations of the affected employee.

(B) The employer shall provide the foregoing information to a second physician under this section upon request either by the second physician, or by the employee.

(8) Physician's written opinion.

(A) For each examination under this section, the employer shall obtain, and provide the employee with a copy of, the examining physician's written opinion within 15 days of its receipt. The written opinion shall include the following:

1. The occupationally pertinent results of the medical examination and tests;

2. The physician's opinion concerning whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of health from exposure to MDA;

3. The physician's recommended limitations upon the employee's exposure to MDA or upon the employee's use of protective clothing or equipment and respirators; and

4. A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from MDA exposure which require further explanation or treatment.

(B) The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposures.

(9) Medical removal.

(A) Temporary medical removal of an employee.

1. Temporary removal resulting from occupational exposure. The employee shall be removed from work environments in which exposure to MDA is at or above the action level or where dermal exposure to MDA may occur, following an initial examination (subsection (n)(2)) periodic examinations (subsection (n)(3)), an emergency situation (subsection (n)(4), or an additional examination (subsection (n)(5)) in the following circumstances:

a. When the employee exhibits signs and/or symptoms indicative of acute exposure to MDA; or

b. When the examining physician determines that an employee's abnormal liver function tests are not associated with MDA exposure but that the abnormalities may be exacerbated as a result of occupational exposure to MDA.

2. Temporary removal due to a final medical determination.

a. The employer shall remove an employee from work having an exposure to MDA at or above the action level or where the potential for dermal exposure exists on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to MDA.

b. For the purposes of this section, the phrase "final medical determination" shall mean the outcome of the physician review mechanism used pursuant to the medical surveillance provisions of this section.

c. Where a final medical determination results in any recommended special protective measures for an employee, or limitations on an employee's exposure to MDA, the employer shall implement and act consistent with the recommendation.

(B) Return of the employee to former job status.

1. The employer shall return an employee to his or her former job status:

a. When the employee no longer shows signs or symptoms of exposure to MDA, or upon the advice of the physician.

b. When a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to MDA.

2. For the purposes of this section, the requirement that an employer return an employee to his or her former job status is not intended to expand upon or restrict any rights an employee has or could have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement.

(C) Removal of other employee special protective measure or limitations. The employer shall remove any limitations placed on an employee or end any special protective measures provided to an employee pursuant to a final medical determination when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary.

(D) Employer options pending a final medical determination. Where the physician review mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:

1. Removal. The employer may remove the employee from exposure to MDA, provide special protective measures to the employee, or place limitations upon the employee, consistent with the medical findings, determinations, or recommendations of the physician who has reviewed the employee's health status.

2. Return. The employer may return the employee to his or her former job status, and end any special protective measures provided to the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions:

a. If the initial removal, special protection, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician; or

b. The employee has been on removal status for the preceding six months as a result of exposure to MDA, then the employer shall await a final medical determination.

(E) Medical removal protection benefits.

1. Provisions of medical removal protection benefits. The employer shall provide to an employee up to six (6) months of medical removal protection benefits on each occasion that an employee is removed from exposure to MDA or otherwise limited pursuant to this section.

2. Definition of medical removal protection benefits. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the earnings, seniority, and other employment rights and benefits of an employee as though the employee had not been removed from normal exposure to MDA or otherwise limited.

3. Follow-up medical surveillance during the period of employee removal or limitations. During the period of time that an employee is removed from normal exposure to MDA or otherwise limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section.

4. Workers' compensation claims. If a removed employee files a claim for workers' compensation payments for a MDA-related disability, then the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by such amount. The employer shall receive no credit for workers' compensation payments received by the employee for treatment-related expenses.

5. Other credits. The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or receives income from employment with any employer made possible by virtue of the employee's removal.

6. Employees who do not recover within the 6 months of removal. The employer shall take the following measures with respect to any employee removed from exposure to MDA:

a. The employer shall make available to the employee a medical examination pursuant to this section to obtain a final medical determination with respect to the employee;

b. The employer shall assure that the final medical determination obtained indicates whether or not the employee may be returned to his or her former job status, and, if not, what steps should be taken to protect the employee's health;

c. Where the final medical determination has not yet been obtained, or once obtained indicates that the employee may not yet be returned to his or her former job status the employer shall continue to provide medical removal protection benefits to the employee until either the employee is returned to former job status, or a final medical determination is made that the employee is incapable of ever safely returning to his or her former job status; and

d. Where the employer acts pursuant to a final medical determination which permits the return of the employee to his or her former job status despite what would otherwise be an unacceptable liver function test, later questions concerning removing the employee again shall be decided by a final medical determination. The employer need not automatically remove such an employee pursuant to the MDA removal criteria provided by this section.

(F) Voluntary removal or restriction of an employee. Where an employer, although not required by this section to do so, removes an employee from exposure to MDA or otherwise places limitations on an employee due to the effects of MDA exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by subsection (n)(9)(E).

(o) Recordkeeping.

(1) Objective data for exempted operations.

(A) Where the employer has relied on objective data that demonstrate that products made from or containing MDA are not capable of releasing MDA or do not present a dermal exposure problem under the expected conditions of processing, use, or handling to exempt such operations from the initial monitoring requirements under subsection (f)(2), the employer shall establish and maintain an accurate record of objective data reasonably relied upon in support of the exemption.

(B) The record shall include at least the following information:

1. The product qualifying for exemption;

2. The source of the objective data;

3. The testing protocol, results of testing, and/or analysis of the material for the release of MDA;

4. A description of the operation exempted and how the data support the exemption; and

5. Other data relevant to the operations, materials, processing, or employee exposures covered by the exemption.

(C) The employer shall maintain this record for the duration of the employer's reliance upon such objective data.

(2) Historical monitoring data.

(A) Where the employer has relied on historical monitoring data that demonstrate that exposures on a particular job will be below the action level to exempt such operations from the initial monitoring requirements under subsection (f)(2), the employer shall establish and maintain an accurate record of historical monitoring data reasonably relied upon in support of the exception.

(B) The record shall include information that reflect the following conditions:

1. The data upon which judgments are based are scientifically sound and were collected using methods that are sufficiently accurate and precise;

2. The processes and work practices that were in use when the historical monitoring data were obtained are essentially the same as those to be used during the job for which initial monitoring will not be performed;

3. The characteristics of the MDA-containing material being handled when the historical monitoring data were obtained are the same as those on the job for which initial monitoring will not be performed;

4. Environmental conditions prevailing when the historical monitoring data were obtained are the same as those on the job for which initial monitoring will not be performed; and

5. Other data relevant to the operations, materials, processing, or employee exposures covered by the exception.

(C) The employer shall maintain this record for the duration of the employer's reliance upon such historical monitoring data.

(3) The employer may utilize the services of competent organizations such as industry trade associations and employee associations to maintain the records required by this section.

(4) Exposure measurements.

(A) The employer shall keep an accurate record of all measurements taken to monitor employee exposure to MDA.

(B) This record shall include at least the following information:

1. The date of measurement;

2. The operation involving exposure to MDA;

3. Sampling and analytical methods used and evidence of their accuracy;

4. Number, duration, and results of samples taken;

5. Type of protective devices worn, if any; and

6. Name, social security number, and exposure of the employees whose exposures are represented.

(C) The employer shall maintain this record for at least thirty (30) years, in accordance with section 3204.

(5) Medical surveillance.

(A) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance by subsection (n), in accordance with section 3204.

(B) The record shall include at least the following information:

1. The name and social security number of the employee;

2. A copy of the employee's medical examination results, including the medical history, questionnaire responses, results of any tests, and physician's recommendations;

3. Physician's written opinions;

4. Any employee medical complaints related to exposure to MDA; and

5. A copy of the information provided to the physician as required by subsection (n).

(C) The employer shall ensure that this record is maintained for the duration of employment plus thirty (30) years, in accordance with section 3204.

(D) A copy of the employee's medical removal and return to work status.

(6) Training records. The employer shall maintain all employee training records for one (1) year beyond the last date of employment.

(7) Availability.

(A) The employer, upon written request, shall make all records required to be maintained by this section available to the Chief and NIOSH for examination and copying.

(B) The employer, upon request, shall make any exposure records required by subsections (f) and (n) available for examination and copying to affected employees, former employees, designated representatives, and the Chief, in accordance with section 3204, (a)–(e) and (g)–(i).

(C) The employer, upon request, shall make employee medical records required by subsections (n) and (o) available for examination and copying to the subject employee, anyone having the specific written consent of the subject employee, and the Chief, in accordance with section 3204.

(8) Transfer of records.

(A) The employer shall comply with the requirements concerning transfer of records set forth in section 3204(h).

(B) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify NIOSH at least 90 days prior to disposal and, upon request, transmit them to NIOSH.

(p) Observation of monitoring.

(1) Employee observation. The employer shall provide affected employees, or their designated representatives, an opportunity to observe the measuring or monitoring of employee exposure to MDA conducted pursuant to subsection (f).

(2) Observation procedures. When observation of the measuring or monitoring of employee exposure to MDA requires entry into areas where the use of protective clothing and equipment or respirators is required, the employer shall provide the observer with personal protective clothing and equipment or respirators required to be worn by employees working in the area, assure the use of such clothing and equipment or respirators, and require the observer to comply with all other applicable safety and health procedures.

(q) Reporting requirements. See section 5203.

(r) Appendices. The information contained in Appendices A, B, C and D to this section is not intended by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation. The protocols for respiratory fit testing in Appendix E are mandatory.

(s) Dates. All obligations related to meeting the PEL for MDA in section 5155 remain in effect until replaced by the more specific requirements of this section on its effective date or on the following dates:

(1) Initial monitoring under subsection (f)(2) shall be completed as soon as possible but no later than 90 days from the effective date of this section.

(2) Medical examinations under subsection (n) shall be completed as soon as possible but no later than 150 days from the effective date of this section.

(3) Emergency plans required by subsection (e) shall be provided and available for inspection and copying as soon as possible but no later than 120 days from the effective date of this section.

(4) Initial training and education shall be completed as soon as possible but no later than 120 days from the effective date of this section.

(5) Decontamination and lunch areas under subsection (k) shall be in operation as soon as possible but no later than 1 year from the effective date of this section.

(6) Respiratory Protection required by subsection (i) shall be provided as soon as possible but no later than 120 days from the effective date of this section.

(7) Written compliance plans required by subsection (h)(5) shall be completed and available for inspection and copying as soon as possible but no later than 120 days from the effective date of this section.

(8) The permissible exposure limits in subsection (c) 120 days from the effective date of this section.

(9) Engineering controls needed to achieve the PELs must be in place 1 year from the effective date of this section.

(10) Personal protective clothing required by subsection (j) shall be available 120 days from the effective date of this section.

NOTE: Authority cited: Sections 142.3, 9020, 9030 and 9040, Labor Code. Reference: Sections 142.3, 9004(d), 9009, 9020, 9030, 9031 and 9040, Labor Code.

HISTORY

1. New section filed 3–3–93; operative 4–2–93 (Register 93, No. 11). For prior history, see Register 84, No. 50.
2. Editorial corrections (Register 95, No. 41).
3. Change without regulatory effect, repealing appendices A–E and adding internal cross–references, filed 9–30–96 pursuant to section 100, title 1, California Code of Regulations (Register 96, No. 40).
4. Amendment of former subsections (i)(1)–(i)(5)(B) including subsection renumbering and relettering resulting in newly designated subsections (i)(1)–(i)(3)(B), and amendment of editorial reference following appendix E heading filed 8–25–98; operative 11–23–98 (Register 98, No. 35).
5. Amendment of subsection (q) and repealer of subsections (q)(1)–(3) filed 7–6–99; operative 8–5–99 (Register 99, No. 28).
6. Amendment of subsection (i)(2) filed 7–31–2003; operative 8–30–2003 (Register 2003, No. 31).
7. Amendment of subsection (f)(7)(A) filed 7–28–2005; operative 7–28–2005. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2005, No. 30).
8. Amendment of subsections (i)(3)(A)–(B) and new subsections (i)(3)(C)–(E) filed 3–6–2007; operative 3–6–2007. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2007, No. 10).

### Appendix A to Section 1535 Substance Data Sheet for 4–4′–Methylenedianiline

Refer to section 5200, Appendix A.

### Appendix B to Section 1535—Substance Technical Guidelines for MDA

Refer to section 5200, Appendix B.

### Appendix C to Section 1535—Medical Surveillance Guidelines for MDA

Refer to section 5200, Appendix C.

### Appendix D to Section 1535—Sampling and Analytical Methods for MDA Monitoring and Measurement Procedures

Refer to section 5200, Appendix D.

### Appendix E to Section 1535—Qualitative and Quantitative Fit Testing Procedures

[See Section 5144, Appendix A]

### § 1536. Ventilation Requirements for Welding, Brazing, and Cutting.

(a) Mechanical Ventilation for Indoor Operations. Local exhaust systems providing a minimum air velocity of 100 lineal feet per minute in the welding zone shall be used except as otherwise specified by this section.

(1) Where local exhaust ventilation is not feasible, mechanical dilution ventilation sufficient to prevent exposure to concentrations of airborne contaminants from exceeding those specified in Section 5155 shall be provided.

(2) Respiratory protective equipment, in accordance with Section 1531, shall be used when the methods described in paragraphs (a) and (a)(1) above are not feasible.

(b) Toxic Substances Used in Any Enclosed Space.

(1) Local exhaust ventilation shall be used when potentially hazardous materials are employed as base metals, fluxes, coatings, platings or filler metals. These include, but are not limited to, the following materials:

(A) Beryllium
(B) Cadmium
(C) Chromium
(D) Fluorides
(E) Lead
(F) Mercury
(G) Zinc
(H) Inert–gas metal–arc welding or oxygen cutting of stainless steel

(2) When the nature of the work is such that local exhaust ventilation is not an effective means for preventing potentially hazardous exposure levels, as specified by Section 5155, supplied–air respirators shall be worn.

(c) Toxic Substances Used in the Open Air. Where toxic substances such as those listed in paragraph (b)(1) are used, respiratory protective equipment, in accordance with Section 1531, shall be provided except as otherwise specified by this subsection.

(1) In operations involving beryllium–containing base or filler metals, only supplied–air respirators shall be used.

(2) Except for operations involving beryllium, cadmium, lead, or mercury, respiratory protective equipment is not required when natural or mechanical ventilation is sufficient to remove welding fumes from the breathing zone of the workers.

(d) Improper Use of Welding Gases. Compressed gases used for welding and cutting shall not be used for ventilation purposes, comfort cooling, blowing dust from clothing, or cleaning the work area.

(e) Chlorinated Hydrocarbons. Degreasing or other operations involving chlorinated hydrocarbons shall be located or controlled such that vapors from these operations will not enter the atmosphere surrounding any welding or cutting operations to prevent the degradation of such chlorinated hydrocarbon vapors to more highly toxic gases by the action of heat or ultraviolet radiation.

(f) Precautionary Labels. Hazardous materials used in welding and cutting shall bear precautionary labels as required by Section 5150 of the General Industry Safety Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 6–18–75; effective thirtieth day thereafter (Register 75, No. 25).
2. Amendment filed 12–13–84; effective thirtieth day thereafter (Register 84, No. 50).

### § 1537. Welding, Cutting, and Heating of Coated Metals.

(a) Before welding, cutting, or heating is commenced on any surface covered by a preservative coating of unknown flammability, a test shall be made by a qualified person to determine its flammability.

(b) Precautions shall be taken to prevent ignition of highly flammable hardened preservative coatings. When coatings are determined to be highly flammable, they shall be stripped from the area to be heated to prevent ignition.

(c) All surfaces covered with toxic preservatives, including coatings which generate toxic substances upon heating, shall be stripped for a distance of at least four inches from the area of heat application, or employees shall be required to use supplied–air respirators in accordance with Section 1531, or the provisions of Section 1536(b), (c) shall apply.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 6–18–75; effective thirtieth day thereafter (Register 75, No. 25).
2. Amendment of NOTE filed 12–13–84; effective thirtieth day thereafter (Register 84, No. 50).

## Article 5. Rock Drilling

### § 1538. Rock Drilling Operations.

(a) When drilling holes in rock, or other dust–producing material, the dust shall be controlled within the maximum acceptable concentrations set forth in Section 5208 (asbestos) and Section 5155 (silica and silicates) of the General Industry Safety Orders. Respiratory protection may be acceptable; refer to Article 4, Sections 1530 and 1531.

(b) All power controlled air drilling shall be performed by use of water or chemical solutions for controlling dust, or other equivalent means.

(c) The ends and each joint of air hoses 1 inch inside diameter or larger shall be chained or secured, as necessary, to prevent whipping in the event of a disconnected hose unless a suitable ball check device or equivalent is provided at the air source.

(d) Air pipe lines shall be protected against accidental impact from vehicles and falling objects at points where breakage of lines would constitute a hazard to employees.

(e) Iron or steel hammers used for removing detachable bits shall be malleable or annealed, so that they will not readily chip or break while being used.

(f) Tugger and anchor lines shall be provided for securing drilling equipment on steep slopes.

(g) Workers shall be provided with, and required to use, personal fall protection as described in Article 24 for all scaling and drilling operations performed on steep slopes. A positive descent control device shall be used for all such applications.

NOTE: See Section 1565(i) for regulation on drilling and loading in the same area. See Section 1696 for requirement for portable compressors.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 10–18–77; effective thirtieth day thereafter (Register 77, No. 43).
2. Amendment of subsections (c) and (g) filed 8–13–84; effective thirtieth day thereafter (Register 84, No. 33).
3. Amendment of subsection (g) filed 7–2–98; operative 8–1–98 (Register 98, No. 27).

## Article 6. Excavations

### § 1539. Permits.

For regulations relating to Permits for excavations and trenches, refer to the California Code of Regulations Title 8, Chapter 3.2, Article 2, Section 341 of the California Occupational Safety and Health Regulations (Cal/OSHA).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 6–21–72; effective thirtieth day thereafter (Register 72, No. 26).
2. Repealer and new section filed 8–1–74 as an emergency; effective upon filing (Register 74, No. 31).
3. Certificate of Compliance filed 11–22–74 (Register 74, No. 48).
4. Certificate of Compliance refiled 11–27–74 (Register 74, No. 48).
5. Repealer and new section filed 11–29–74; effective thirtieth day thereafter (Register 74, No. 48).
6. Amendment of article heading and section filed 8–26–91; operative 9–25–91 (Register 92, No. 13).

[The next page is 167.]

## § 1540. Excavations.

(a) Scope and application. This article applies to all open excavations made in the earth's surface. Excavations are defined to include trenches.

(b) Definitions applicable to this article.

Accepted engineering practices means those requirements which are compatible with standards of practice required by a registered professional engineer.

Aluminum hydraulic shoring. A pre-engineered shoring system comprised of aluminum hydraulic cylinders (crossbraces) used in conjunction with vertical rails (uprights) or horizontal rails (walers). Such system is designed specifically to support the sidewalls of an excavation and prevent cave-ins.

Bell-bottom pier hole. A type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.

Benching (Benching system). A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

Cave-in. The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a peron.

Crossbraces. The horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

Excavation. Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Faces or sides. The vertical or inclined earth surfaces formed as a result of excavation work.

Failure. The breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.

Hazardous atmosphere. An atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

Kickout. The accidental release or failure of a cross brace.

Protective system. A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

Ramp. An inclined walking or working surface that is used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood.

Registered professional engineer. A person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

Sheeting. The members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

Shield (Shield system). A structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either premanufactured or job-built in accordance with Section 1541.1(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

Shoring (Shoring system). A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Sides. See "Faces."

Sloping (Sloping system). A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away form the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

Stable rock. Natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against caving-in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.

Structural ramp. A ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.

Support system. A structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

Tabulated data. Tables and charts approved by a registered professional engineer and used to design and construct a protective system.

Trench (Trench excavation). A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less, (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Trench box. See "Shield."

Trench shield. See "Shield."

Uprights. The vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

Wales. Horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 8-23-82; effective thirtieth day thereafter (Register 82, No. 35). For prior history, see Register 75, No. 21.
2. Amendment of subsection (b)(3) filed 11-18-83; effective thirtieth day thereafter (Register 83, No. 47).
3. Amendment of subsections (b)(2) and (b)(3) filed 5-1-87; operative 5-31-87 (Register 87, No. 19).
4. Repealer and new section filed 8-26-91; operative 9-25-91 (Register 92, No. 13).

## § 1541. General Requirements.

(a) Surface encumbrances. All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.

(b) Subsurface installations.

(1) The approximate location of subsurface installations, such as sewer, telephone, fuel, electric, water lines, or any other subsurface installations that reasonably may be expected to be encountered during excavation work, shall be determined by the excavator prior to opening an excavation.

(A) Excavation shall not commence until:

1. The excavation area has been marked as specified in Government Code Section 4216.2 by the excavator; and

2. The excavator has received a positive response from all known owner/operators of subsurface installations within the boundaries of the proposed project; those responses confirm that the owner/operators have located their installations, and those responses either advise the excavator of those locations or advise the excavator that the owner/operator does

not operate a subsurface installation that would be affected by the proposed excavation.

(B) When the excavation is proposed within 10 feet of a high priority subsurface installation, the excavator shall be notified by the facility owner/operator of the existence of the high priority subsurface installation before the legal excavation start date and time in accordance with Government Code Section 4216.2(a), and an onsite meeting involving the excavator and the subsurface installation owner/operator's representative shall be scheduled by the excavator and the owner/operator at a mutually agreed on time to determine the action or activities required to verify the location of such installations. High priority subsurface installations are high pressure natural gas pipelines with normal operating pressures greater than 415 kPA gauge (60 p.s.i.g.), petroleum pipelines, pressurized sewage pipelines, conductors or cables that have a potential to ground of 60,000 volts or more, or hazardous materials pipelines that are potentially hazardous to employees, or the public, if damaged.

(C) Only qualified persons shall perform subsurface installation locating activities, and all such activities shall be performed in accordance with this section and Government Code Sections 4216 through 4216.9. Persons who complete a training program in accordance with the requirements of Section 1509, Injury and Illness Prevention Program (IIPP), that meets the minimum training guidelines and practices of the Common Ground Alliance (CGA) Best Practices, Version 3.0, published March 2006, or the standards of the National Utility Locating Contractors Association (NULCA), Standard 101: Professional Competence Standards for Locating Technicians, 2001, First Edition, which are incorporated by reference, shall be deemed qualified for the purpose of this section.

(D) Employees who are involved in the excavation operation and exposed to excavation operation hazards shall be trained in the excavator notification and excavation practices required by this section and Government Code Sections 4216 through 4216.9.

(2) All Regional Notification Centers as defined by Government Code Section 4216(j) in the area involved and all known owners of subsurface facilities in the area who are not members of a Notification Center shall be advised of the proposed work at least 2 working days prior to the start of any digging or excavation work. EXCEPTION: Repair work to subsurface facilities done in response to an emergency as defined in Government Code Section 4216(d).

(3) When excavation or boring operations approach the approximate location of subsurface installations, the exact location of the installations shall be determined by safe and acceptable means that will prevent damage to the subsurface installation, as provided by Government Code Section 4216.4.

(4) While the excavation is open, subsurface installations shall be protected, supported, or removed as necessary to safeguard employees.

(5) An excavator discovering or causing damages to a subsurface installation shall immediately notify the facility owner/operator or contact the Regional Notification Center to obtain subsurface installation operator contact information immediately after which the excavator shall notify the facility operator. All breaks, leaks, nicks, dents, gouges, grooves, or other damages to an installation's lines, conduits, coatings or cathodic protection shall be reported to the subsurface installation operator. If damage to a high priority subsurface installation results in the escape of any flammable, toxic, or corrosive gas or liquid or endangers life, health or property, the excavator responsible shall immediately notify 911, or if 911 is unavailable, the appropriate emergency response personnel having jurisdiction. The facility owner/operator shall also be contacted.

NOTE: The terms excavator and operator as used in Section 1541(b) shall be as defined in Government Code Section 4216(c) and (h) respectively. The term "owner/operator" means an operator as the term "operator" is defined in Government Code Section 4216(h).

(c) Access and egress.

(1) Structural ramps.

(A) Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

(B) Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.

(C) Structural members used for ramps and runways shall be of uniform thickness.

(D) Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.

(E) Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments to the top surface to prevent slipping.

(2) Means of egress from trench excavations.

A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees.

(d) Exposure to vehicular traffic. Employees exposed to public vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high–visibility material.

(e) Exposure to falling loads. No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with Section 1591(e), to provide adequate protection for the operator during loading and unloading operations.

(f) Warning system for mobile equipment. When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

(g) Hazardous atmospheres.

(1) Testing and controls. In addition to the requirements set forth in the Construction Safety Orders and the General Industry Safety Orders to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements shall apply:

(A) Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet in depth.

(B) Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation.

(C) Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.

(D) When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.

(2) Emergency rescue equipment.

(A) Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.

(B) Employees entering bell–bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to

handle materials, and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

(h) Protection from hazards associated with water accumulation.

(1) Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

(2) If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.

(3) If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with Sections 1541 (h)(1) and (h)(2).

(i) Stability of adjacent structures.

(1) Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.

(2) Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when:

(A) A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or

(B) The excavation is in stable rock; or

(C) A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

(3) Sidewalks, pavements and appurtenant structure shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

(j) Protection of employees from loose rock or soil.

(1) Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

(2) Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

(k) Inspection.

(1) Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rain storm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

(2) Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

(*l*) Fall protection.

(1) Where employees or equipment are required or permitted to cross over excavations over 6-feet in depth and wider than 30 inches, walkways or bridges with standard guardrails shall be provided.

(2) Adequate barrier physical protection shall be provided at all remotely located excavations. All wells, pits, shafts, etc., shall be barricaded or covered. Upon completion of exploration and other similar operations, temporary wells, pits, shafts, etc., shall be backfilled.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 4216, Government Code.

HISTORY

1. Repealer and new section filed 8-23-82; effective thirtieth day thereafter (Register 82, No. 35). For prior history, see Registers 75, No. 21; 74, No. 35; and 74, No. 17.
2. Repealer and new section filed 8-26-91; operative 9-25-91 (Register 92, No. 13).
3. Change without regulatory effect amending subsection (h)(3) filed 10-22-92 pursuant to section 100, title 1, California Code of Regulations (Register 92, No. 43).
4. Amendment of subsections (c)(2) and (*l*)(1) filed 1-24-94; operative 2-23-94 (Register 94, No. 4).
5. Change without regulatory effect amending subsection (b)(2) filed 2-10-94 pursuant to title 1, section 100, California Code of Regulations (Register 94, No. 6).
6. Editorial correction restoring amendment to subsection (*l*)(7) (Register 94, No. 16).
7. Change without regulatory effect amending subsection (*l*)(1) filed 11-3-2004 pursuant to section 100, title 1, California Code of Regulations (Register 2004, No. 45).
8. Amendment of subsections (b)-(b)(1) and (b)(2)-(4) and new subsections (b)(1)(A)-(D) and (b)(5) filed 3-1-2007; operative 3-31-2007 (Register 2007, No. 9).

## § 1541.1. Requirements for Protective Systems.

(a) Protection of employees in excavations.

(1) Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with Section 1541.1(b) or (c) except when:

(A) Excavations are made entirely in stable rock; or

(B) Excavations are less than 5 feet in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

(2) Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

(b) Design of sloping and benching systems. The slopes and configurations of sloping and benching systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of Section 1541.1(b)(1), Section 1541.1(b)(2), Section 1541.1(b)(3), or Section 1541.1(b)(4), as follows:

(1) Option (1) —Allowable configurations and slopes.

(A) Excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless the employer uses one of the other options listed below.

(B) Slopes specified in Section 1541.1(b)(1)(A) shall be excavated to form configurations that are in accordance with the slopes shown for Type C soil in Appendix B to this article.

(2) Option (2) —Determination of slopes and configurations using Appendices A and B. Maximum allowable slopes, and allowable configurations for sloping and benching systems, shall be determined in accordance with the conditions and requirements set forth in Appendices A and B to this article.

(3) Option (3) —Designs using other tabulated data.

(A) Designs of sloping or benching systems shall be selected from and be in accordance with tabulated data, such as tables and charts.

(B) The tabulated data shall be in written form and shall include all of the following:

1. Identification of the parameters that affect the selection of a sloping or benching system drawn from such data;

2. Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe;

3. Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

4. At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Division upon request.

(4) Option (4) —Design by a registered professional engineer.

(A) Sloping and benching systems not utilizing Option (1) or Option (2) or Option (3) under Section 1541.1(b) shall be stamped and signed by a registered professional engineer.

(B) Designs shall be in written form and shall include at least the following:

1. The magnitude of the slopes that were determined to be safe for the particular project;

2. The configurations that were determined to be safe for the particular project;

3. The identity of the registered professional engineer approving the design.

(C) At least one copy of the design shall be maintained at the jobsite while the slope is being constructed. After that time the design need not be at the jobsite, but a copy shall be made available to the Division upon request.

(c) Design of support systems, shield systems, and other protective systems. Designs of support systems, shield systems, and other protective systems shall be selected and constructed by the employer or his designee and shall be in accordance with the requirements of Section 1541.1(c)(1); or, in the alternative, Section 1541.1(c)(2); or, in the alternative, Section 1541.1(c)(3); or, in the alternative, Section 1541.1(c)(4) as follows:

(1) Option (1) —Designs using Appendices A, C and D. Designs for timber shoring in trenches shall be determined in accordance with the conditions and requirements set forth in Appendices A and C to this article. Designs for aluminum hydraulic shoring shall be in accordance with Section 1541.1(c)(2), but if manufacturer's tabulated data cannot be utilized, designs shall be in accordance with Appendix D.

(2) Option (2) —Designs Using Manufacturer's Tabulated Data.

(A) Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer.

(B) Deviation from the specifications, recommendations, and limitations issued or made by the manufacturer shall only be allowed after the manufacturer issues specific written approval.

(C) Manufacturer's specifications, recommendations, and limitations, and manufacturer's approval to deviate from the specifications, recommendations, and limitations shall be in written form at the jobsite during construction of the protective system. After that time this data may be stored off the jobsite, but a copy shall be made available to the Division upon request.

(3) Option (3) —Designs using other tabulated data.

(A) Designs of support systems, shield systems, or other protective systems shall be selected from and be in accordance with tabulated data, such as tables and charts.

(B) The tabulated data shall be in written form and include all of the following:

1. Identification of the parameters that affect the selection of a protective system drawn from such data;

2. Identification of the limits of use of the data;

3. Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

(C) At least one copy of the tabulated data, which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction of the protective system. After that time the data may be stored off the jobsite, but a copy of the data shall be made available to the Division upon request.

(4) Option (4) —Design by a registered professional engineer.

(A) Support systems, shield systems, and other protective systems not utilizing Option 1, Option 2, or Option 3, above, shall be approved by a registered professional engineer.

(B) Designs shall be in written form and shall include the following:

1. A plan indicating the sizes, types, and configurations of the materials to be used in the protective system; and

2. The identity of the registered professional engineer approving the design.

(C) At least one copy of the design shall be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design shall be made available to the Division upon request.

(d) Materials and equipment.

(1) Materials and equipment used for protective systems shall be free from damage or defects that might impair their proper function.

(2) Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.

(3) When material or equipment that is used for protective systems is damaged, a competent person shall examine the material or equipment and evaluate its suitability for continued use. If the competent person cannot assure the material or equipment is able to support the intended loads or is otherwise suitable for safe use, then such material or equipment shall be removed from service, and shall be evaluated and approved by a registered professional engineer before being returned to service.

(e) Installation and removal of supports.

(1) General.

(A) Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.

(B) Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.

(C) Individual members of support systems shall not be subjected to loads exceeding those which those members were designed to withstand.

(D) Before temporary removal of individual members begins, additional precautions shall be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system.

(E) Removal shall begin at, and progress from, the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation.

(F) Backfilling shall progress together with the removal of support systems from excavations.

(2) Additional requirements for support systems for trench excavations.

(A) Excavation of material to a level no greater than 2 feet below the bottom of the members of a support system shall be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.

(B) Installation of a support system shall be closely coordinated with the excavation of trenches.

(f) Sloping and benching systems. Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

(g) Shield systems.

(1) General.

(A) Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.

(B) Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.

(C) Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.

(D) Employees shall not be allowed in shields when shields are being installed, removed, or moved vertically.

(2) Additional requirements for shield systems used in trench excavations. The sides of the shield shall extend a minimum of 18 inches above the vertical walls of compound excavations as shown in Appendix B, figures B-1, B-1.2 and B-1.3. On vertically cut trenches, the shield shall extend to at least the catch point of the trench. Excavations of earth material to a level not greater than 2 feet below the bottom of a shield shall be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield.

(h) Uprights shall extend to the top of the trench with the lower end of the upright not more than 2 feet from the bottom of the trench.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section including Appendices A-F filed 8-26-91; operative 9-25-91 (Register 92, No. 13).
2. Change without regulatory effect amending Appendix B, subsection (c)(3)(C) filed 6-29-92; operative 7-29-92 pursuant to section 100, title 1, California Code of Regulations (Register 92, No. 27).
3. Change without regulatory effect amending Appendix A, subsection (b), Soil classification system filed 10-22-92 pursuant to section 100, title 1, California Code of Regulations (Register 92, No. 43).
4. Change without regulatory effect amending subsection (b)(1)(B) filed 12-18-95 pursuant to section 100, title 1, California Code of Regulations (Register 95, No. 51).
5. Editorial correction restoring subsection (g)(1)(A) (Register 97, No. 6).
6. Amendment of subsections (b) and (b)(4)(A), new subsection (g)(1)(A), and amendment of subsection (g)(2) filed 3-5-97; operative 4-4-97 (Register 97, No. 10).
7. New subsection (h) and amendment of Appendix D, subsection (g)(7) filed 4-9-2001; operative 5-9-2001 (Register 2001, No. 15).
8. Change without regulatory effect clarifying graphics in Appendices B and E filed 7-14-2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 29).

## Appendix A

### Soil Classification

(a) Scope and application.

(1) Scope. This appendix describes a method of classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. The appendix contains definitions, sets forth requirements, and describes acceptable visual and manual tests for use in classifying soils.

(2) Application. This appendix applies when a sloping or benching system is designed in accordance with the requirements set forth in Section 1541.1(b)(2) as a method of protection for employees from cave-ins. This appendix also applies when timber shoring for excavations is designed as a method of protection from cave-ins in accordance with Appendix C to this article, and when aluminum hydraulic shoring is designed in accordance with Appendix D. This appendix also applies if other protective systems are designed and selected for use from data prepared in accordance with the requirements set forth in Section 1541.1(c), and the use of the data is predicated on the use of the soil classification system set forth in this appendix.

(b) Definitions.

Cemented soil. A soil in which the particles are held together by a chemical agent, such a calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

Cohesive soil. Clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical side slopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

Dry soil. Soil that does not exhibit visible signs of moisture content.

Fissured. A soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

Granular soil. Gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

Layered system. Two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

Moist soil. A condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

Plastic. A property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.

Saturated soil. A soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.

Soil classification system. A method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the environmental conditions of exposure.

Stable rock. Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

Submerged soil. Soil which is underwater or is free seeping.

Type A soil. Cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot (tsf) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

(1) The soil is fissured; or

(2) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or

(3) The soil has been previously disturbed; or

(4) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or

(5) The material is subject to other factors that would require it to be classified as a less stable material.

Type B soil:

(1) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf but less than 1.5 tsf; or

(2) Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.

(3) Previously disturbed soils except those which would otherwise be classed as Type C soil.

(4) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or

(5) Dry rock that is not stable; or

(6) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

Type C soil:

(1) Cohesive soil with an unconfined compressive strength of 0.5 tsf or less; or

(2) Granular soils including gravel, sand, and loamy sand; or

(3) Submerged soil or soil from which water is freely seeping; or

(4) Submerged rock that is not stable, or

(5) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

Unconfined compressive strength. The load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

Wet soil. Soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

(c) Requirements.

(1) Classification of soil and rock deposits. Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the definitions set forth in paragraph (b) of this appendix.

(2) Basis of classification. The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses shall be conducted by a competent person using tests described in paragraph (d) below, or in other approved methods of soil classification and testing such as those adopted by the American Society for Testing Materials, or the U.S. Department of Agriculture textural classification system.

(3) Visual and manual analyses. The visual and manual analyses, such as those noted as being acceptable in paragraph (d) of this appendix, shall be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.

(4) Layered systems. In a layered system, the system shall be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.

(5) Reclassification. If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes shall be evaluated by a competent person. The deposit shall be reclassified as necessary to reflect the changed circumstances.

(d) Acceptable visual and manual tests.

(1) Visual tests. Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.

(A) Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.

(B) Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breads up easily and does not stay in clumps is granular.

(C) Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.

(D) Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.

(E) Observe the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.

(F) Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.

(G) Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

(2) Manual tests. Manual analysis of soil samples in conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.

(A) Plasticity. Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.

(B) Dry strength. If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breads into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.

(C) Thumb penetration. The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences (rain, flooding), the classification of the soil must be changed accordingly.

(D) Other strength tests. Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shearvane.

(E) Drying test. The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick and six inches in diameter until it is thoroughly dry:

1. If the sample develops cracks as it dries, significant fissures are indicated.

2. Samples that dry without cracking are to be broken by hand. If considerable force is necessary to bread a sample, the soil has significant cohesive material content. The soil can be classified as an unfissured cohesive material and the unconfined compressive strength should be determined.

3. If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

## Appendix B

### Sloping and Benching

(a) Scope and application. This appendix contains specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins. The requirements of this appendix apply when the design of sloping and benching protective systems is to be performed in accordance with the requirements set forth in Section 1541.1(b).

(b) Definitions.

Actual slope means the slope to which an excavation face is excavated.

Distress means that the soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material

from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the face of an excavation; and ravelling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

Maximum allowable slope means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

Short term exposure means a period of time less than or equal to 24 hours that an excavation is open.

(c) Requirements.

(1) Soil classification. Soil and rock deposits shall be classified in accordance with Appendix A to Section 1541.1.

(2) Maximum allowable slope. The maximum allowable slope for a soil or rock deposit shall be determined from Table B-1 of this appendix.

(3) Actual slope.

(A) The actual slope shall not be steeper than the maximum allowable slope.

(B) The actual slope shall be less steep than the maximum allowable slope, when there are signs of distress. If that situation occurs, the slope shall be cut back to an actual slope which is at least 1/2 horizontal to one vertical (1/2H:1V) less steep than the maximum allowable slope.

(C) When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person shall determine the degree to which the actual slope must be reduced below the maximum allowable slope, and shall assure that such reduction is achieved. Surcharge loads from adjacent structures shall be evaluated in accordance with Section 1541(i).

(4) Configurations. Configurations of sloping and benching systems shall be in accordance with Figure B-1.

TABLE B-1
MAXIMUM ALLOWABLE SLOPES

| SOIL OR ROCK TYPE | MAXIMUM ALLOWABLE SLOPES [1] (H:V) FOR EXCAVATIONS LESS THAN 20 FEET DEEP [3] |
|---|---|
| STABLE ROCK<br>TYPE A [2]<br>TYPE B<br>TYPE C | VERTICAL (90°)<br>3/4:1 (53°)<br>1:1 (45°)<br>1½:1 (34°) |

NOTES:

1. Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

2. A short-term maximum allowable slope of 1/2H:1V (63 degrees) is allowed in excavations in Type A soil that are 12 feet or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet in depth shall be 3/4H:1V (53 degrees).

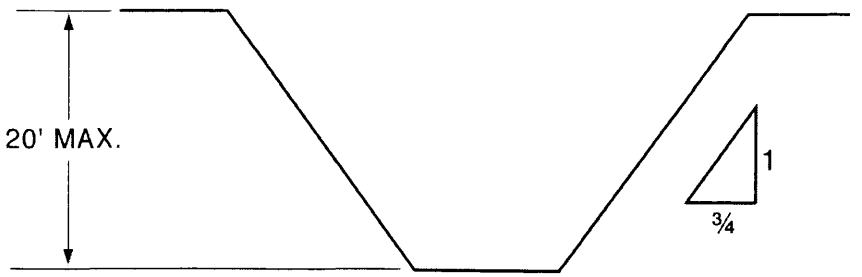
3. Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

FIGURE B-1
SLOPE CONFIGURATIONS

(All slopes stated below are in the horizontal to vertical ratio)

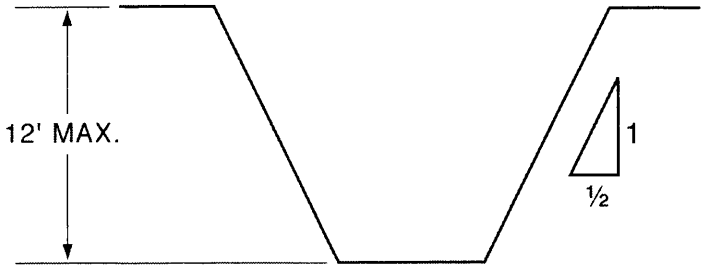
B - 1.1 Excavations made in Type A soil.

1. All simple slope excavations 20 feet or less in depth shall gave a maximum allowable slope of 3/4:1.



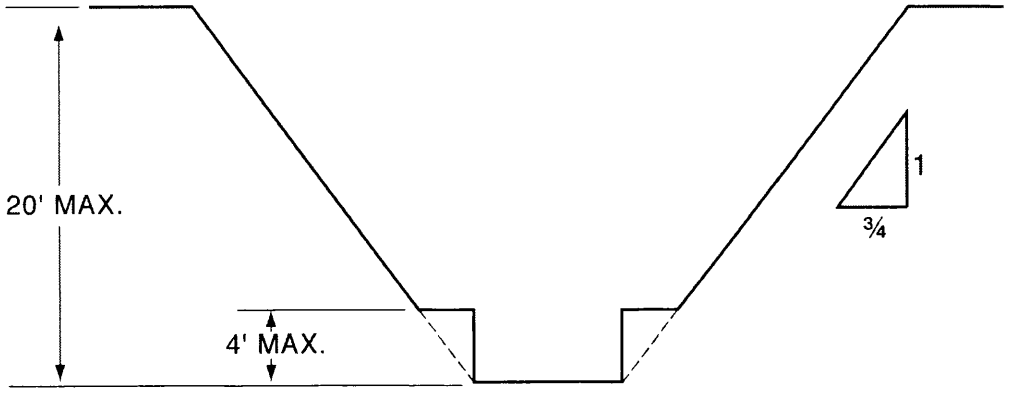

Simple Slope - General

Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of 1/2:1.

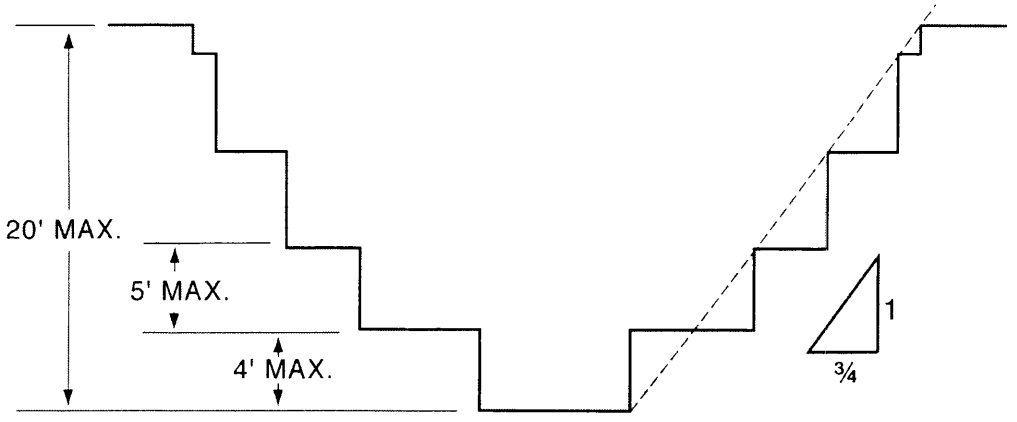



Simple Slope – Short Term

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4 to 1 and maximum bench dimensions as follows:

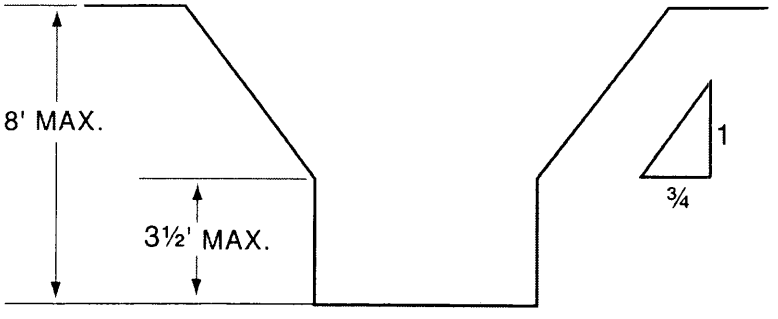



Simple Bench



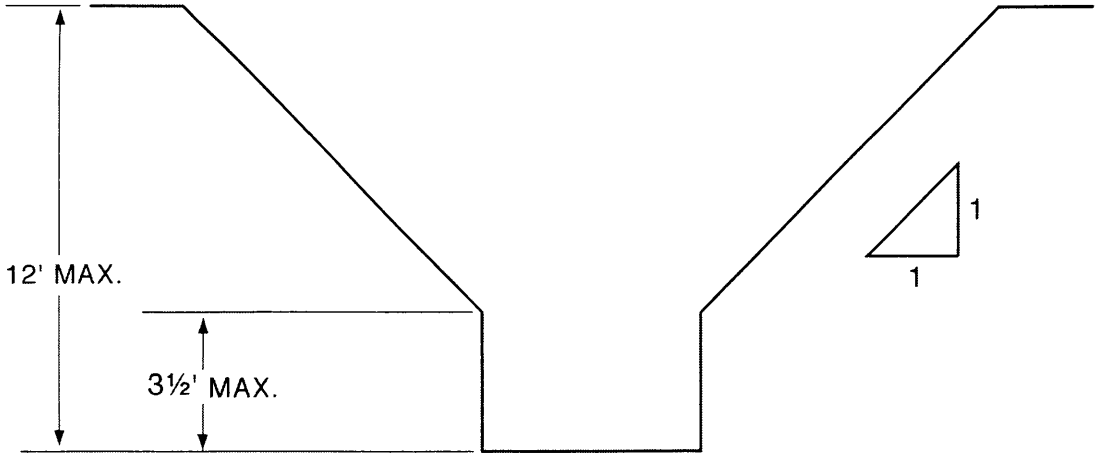

Multiple Bench

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side 3 1/2 feet.



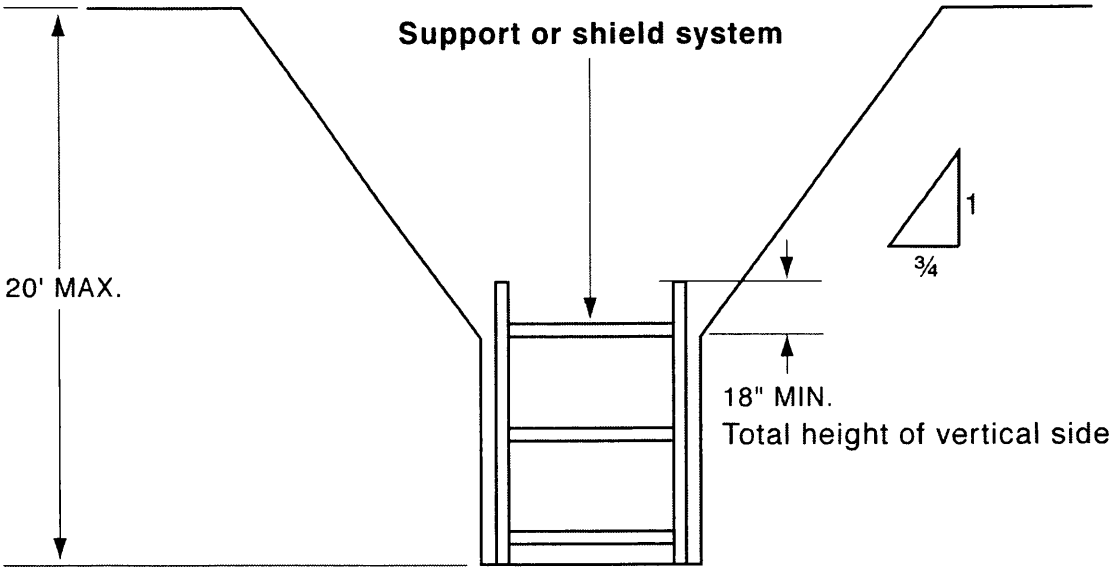

Unsupported Vertically Sided Lower Portion – Maximum 8 Feet in Depth

All excavations more than 8 feet but not more than 12 feet in depth with unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3 1/2 feet.




Unsupported Vertically Sided Lower Portion – Maximum 12 Feet in Depth

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of 3/4:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

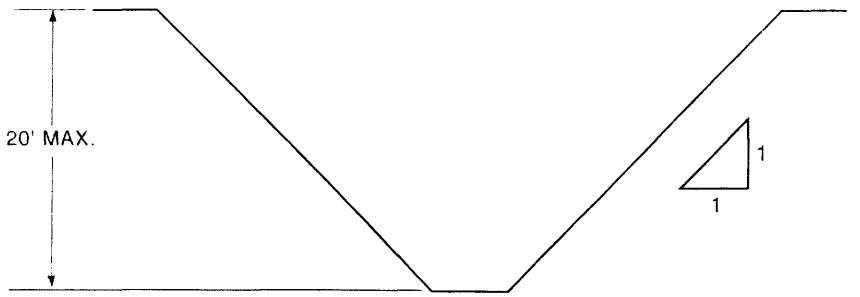



Supported or Shielded Vertically Sided Lower Portion

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under 1541.1(b).

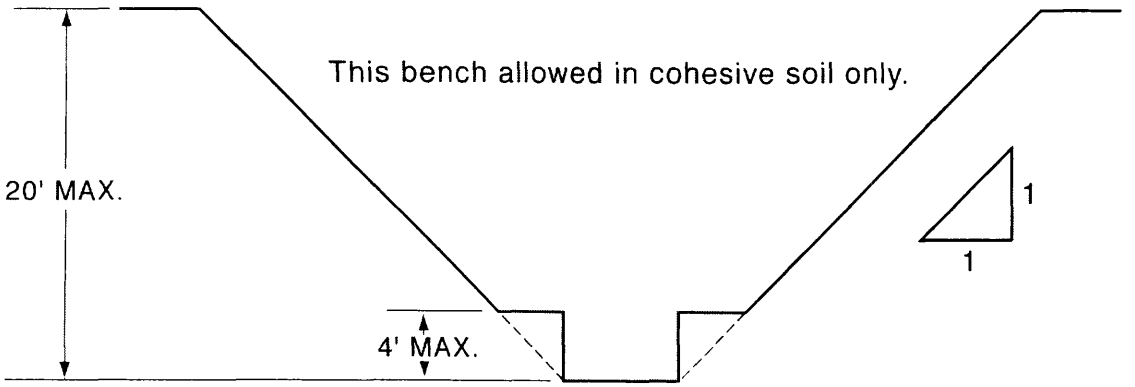
B – 1.2 Excavations Made in Type B Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

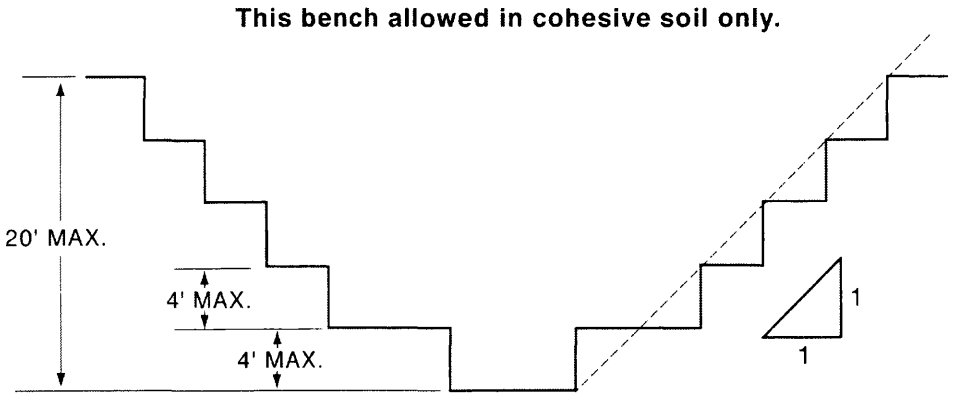



Simple Slope

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:

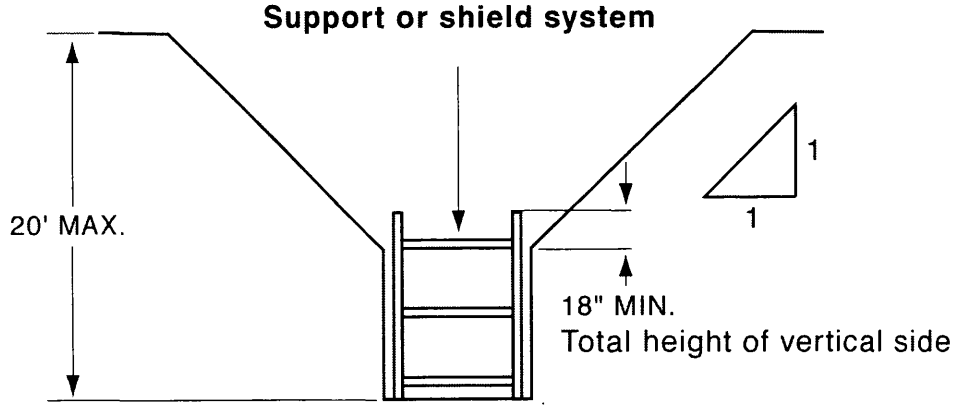



Single Bench




Multiple Bench

3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.

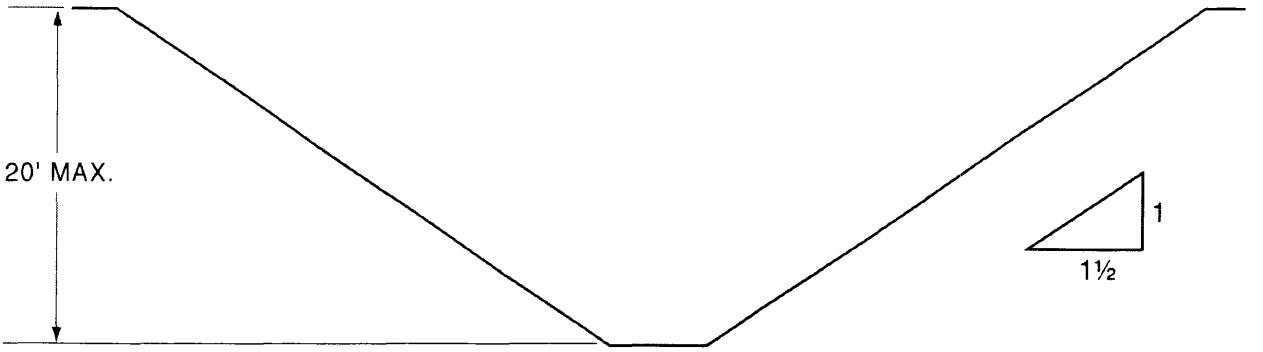



Vertically Sided Lower Portion

4. All other sloped excavations shall be in accordance with the other options permitted in 1541.1(b).

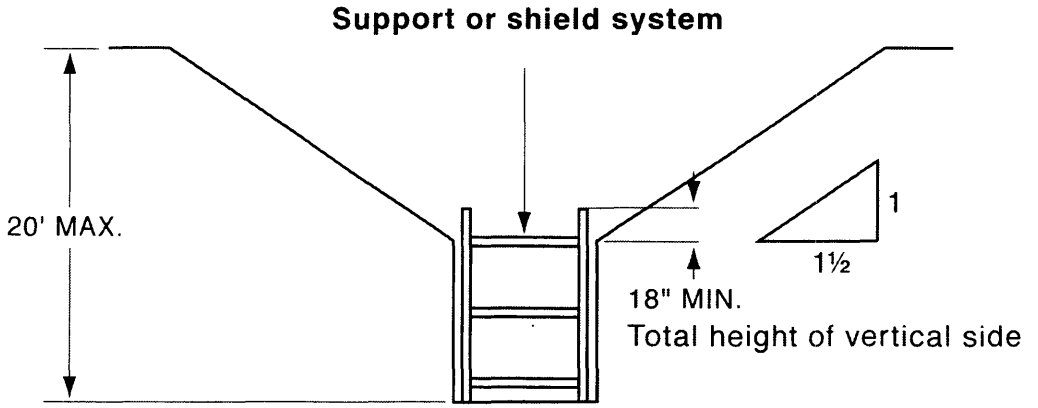
B – 1.3 Excavations Made in Type C Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1 1/2:1.




Simple Slope

2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1 1/2:1.

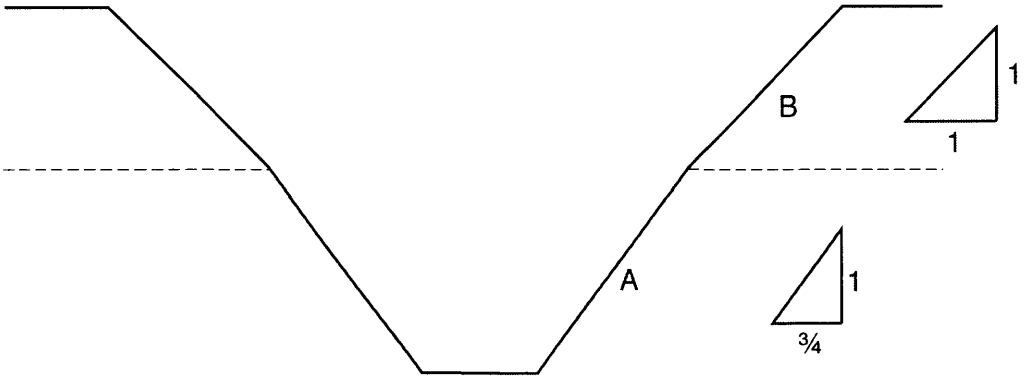



Vertically Sided Lower Portion

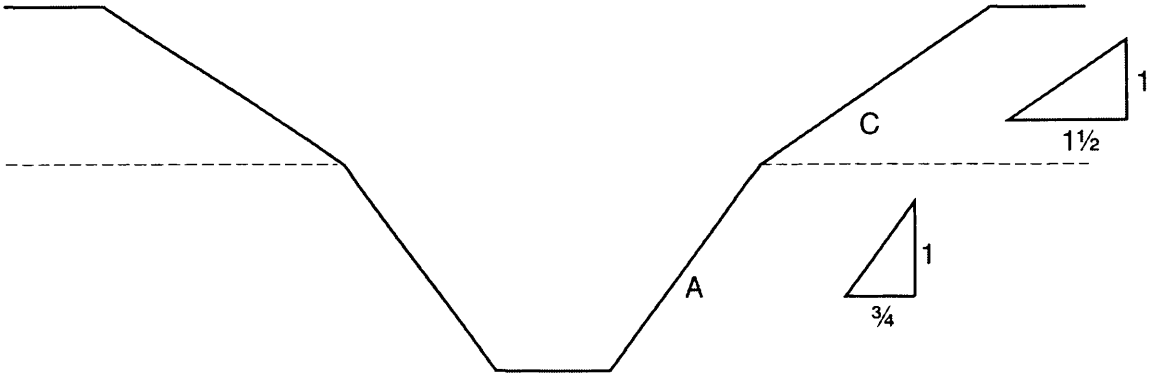
3. All other sloped excavations shall be in accordance with the other options permitted in 1541.1(b).

B – 1.4 Excavations Made in Layered Soil

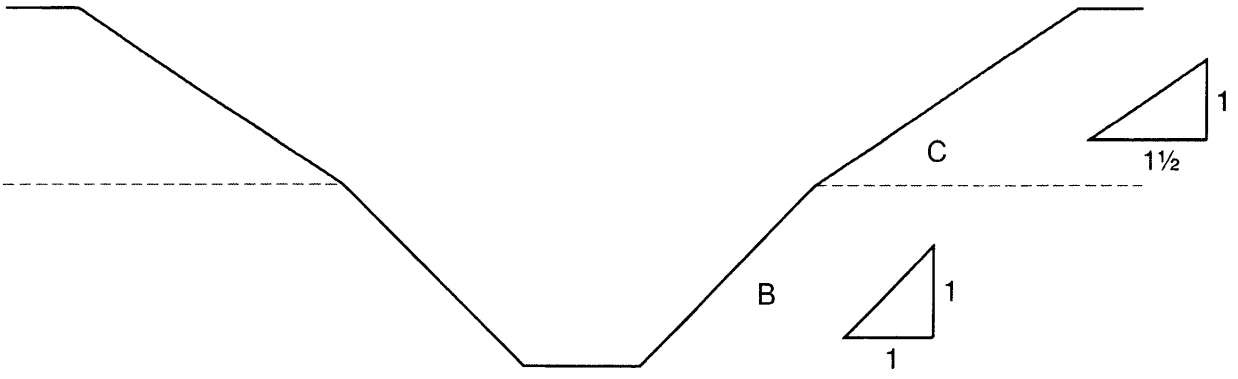
1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below:



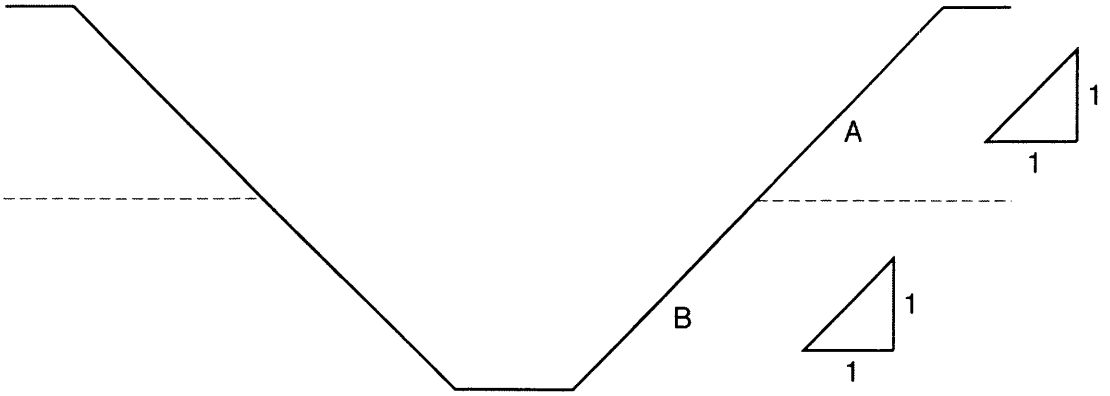

B OVER A



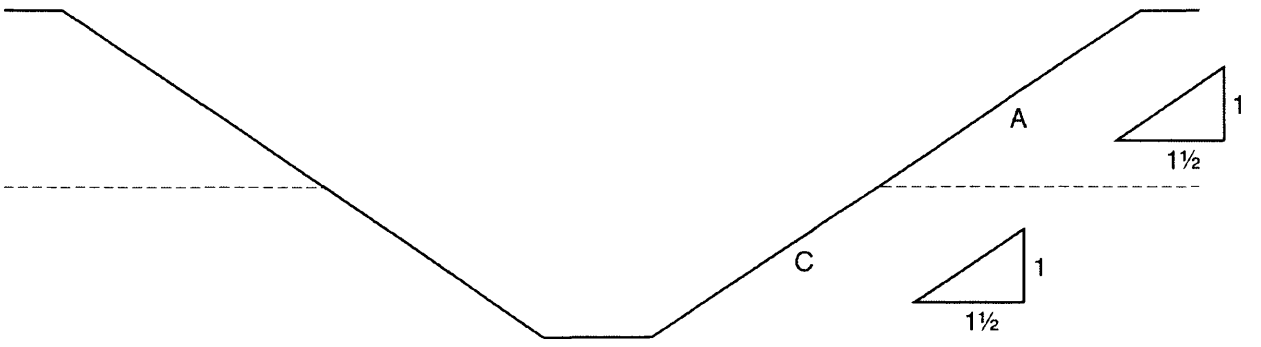

C OVER A



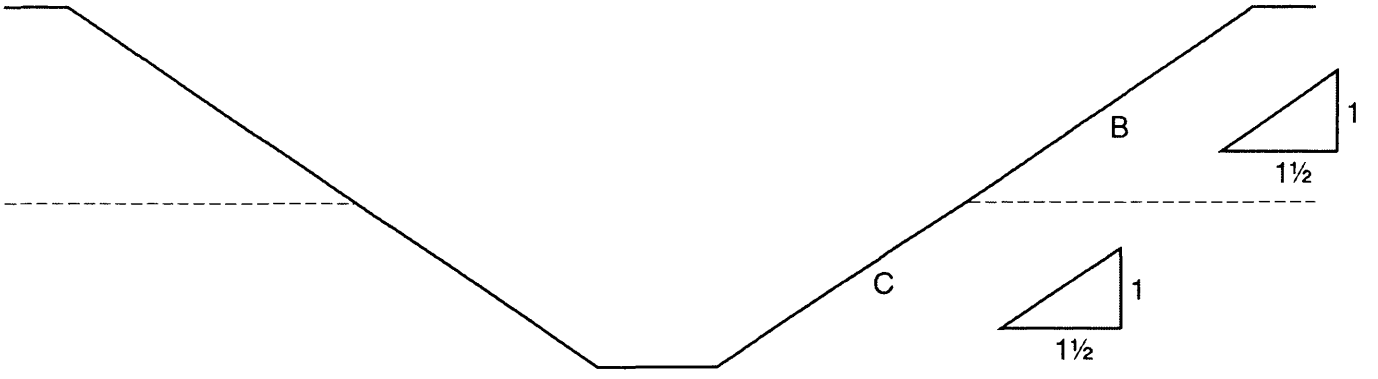

C OVER B




A OVER B




A OVER C




B OVER C

2. All other sloped excavations shall be in accordance with the other options permitted in 1541.1(b).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

## Appendix C

### Timber Shoring for Trenches

(a) Scope. This appendix contains information that can be used when timber shoring is provided as a method of protection from cave-ins in trenches that do not exceed 20 feet in depth. This appendix must be used when design of timber shoring protective systems is to be performed in accordance with Section 1541.1(c)(1). Other timber shoring configurations; other systems of support such as hydraulic and pneumatic systems; and other protective systems such as sloping, benching, shielding, and freezing systems must be designed in accordance with the requirements set forth in Section 1541.1(b) and 1541.1(c).

(b) Soil Classification. In order to use the data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the soil classification method set forth in Article 6.

(c) Presentation of Information.

Information is presented in several forms as follows:

(1) Information is presented in tabular form in Tables C–1.1, C–1.2 and C–1.3, and Tables C–2.1, C–2.2 and C–2.3 following Section (g) of Appendix C. Each table presents the minimum sizes of timber members to use in a shoring system, and each table contains data only for the particular soil type in which the excavation or portion of the excavation is made. The data are arranged to allow the user the flexibility to select from among several acceptable configurations of members based on varying the horizontal spacing of the crossbraces. Stable rock is exempt from shoring requirements and therefore, no data are presented for this condition.

(2) Information concerning the basis of the tabular data and the limitations of the data is presented in Section (d) of this appendix, and on the tables themselves.

(3) Information explaining the use of the tabular data is presented in Section (e) of this appendix.

(4) Information illustrating the use of the tabular data is presented in Section (f) of this appendix.

(5) Miscellaneous notations regarding Tables C–1.1 through C–1.3 and Tables C–2.1 through C–2.3 are presented in Section (g) of this appendix.

(d) Basis and limitations of the data.

(1) Dimensions of timber members.

(A) The sizes of the timber members listed in Tables C–1.1 through C–1.3 are taken from the National Bureau of Standards (NBS) report, "Recommended Technical Provisions for Construction Practice in Shoring and Sloping of Trenches and Excavations." In addition, where NBS did not recommend specific sizes of members, member sizes are based on an analysis of the sizes required for use by existing codes and on empirical practice.

(B) The required dimensions of the members listed in Tables C–1.1 through C–1.3 refer to actual dimensions and not nominal dimensions of the timber. Employers wanting to use nominal size shoring are directed to Tables C–2.1 through C–2.3, or have this choice under Section 1541.1(c)(3).

(2) Limitation of application.

(A) It is not intended that the timber shoring specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be designed as specified in Section 1541.1(c).

(B) When any of the following conditions are present, the members specified in the tables are not considered adequate. Either an alternate timber shoring system must be designed or another type of protective system designed in accordance with Section 1541.1.

1. When loads imposed by structures or by stored material adjacent to the trench weigh in excess of the load imposed by a two-foot soil surcharge. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.

2. When vertical loads imposed on crossbraces exceed a 240-pound gravity load distributed on a one-foot section of the center of the crossbrace.

3. When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

4. When only the lower portion of a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

(e) Use of Tables. The members of the shoring system that are to be selected using this information are the crossbraces, the uprights, and the wales, where wales are required. Minimum sizes of members are specified for use in different types of soil. There are six tables of information, two for each soil type. The soil type must first be determined in accordance with the soil classification system described in Appendix A. Using the appropriate table, the selection of the size and spacing of the members is then made. The selection is based on the depth and width of the trench where the members are to be installed and, in most instances, the selection is also based on the horizontal spacing of the crossbraces. Instances where a choice of horizontal spacing of crossbracing is available, the horizontal spacing of the crossbraces must be chosen by the user before the size of any member can be determined. When the soil type, the width and depth of the trench, and the horizontal spacing of the crossbraces, the size and vertical spacing of the crossbraces are known, the size and vertical spacing of the crossbraces, the size and vertical spacing of the wales, and the size and horizontal spacing of the uprights can be read from the appropriate table.

(f) Examples to Illustrate the Use of Tables C–1.1 through C–1.3.

(1) Example 1.

A trench dug in Type A soil is 13 feet deep and five feet wide. From Table C–1.1, four acceptable arrangements of timber can be used.

Arrangement #1

Space 4X4 crossbraces at six feet horizontally and four feet vertically. Wales are not required.

Space 3X8 uprights at six feet horizontally. This arrangement is commonly called "skip shoring."

Arrangement #2

Space 4X6 crossbraces at eight feet horizontally and four feet vertically.

Space 8X8 wales at four feet vertically.

Space 2X6 uprights at four feet horizontally.

Arrangement #3

Space 6X6 crossbraces at 10 feet horizontally and four feet vertically.

Space 8X10 wales at four feet vertically.

Space 2X6 uprights at five feet horizontally.

Arrangement #4

Space 6X6 crossbraces at 12 feet horizontally and four feet vertically.

Space 10X10 wales at four feet vertically.

Space 3X8 uprights at six feet horizontally.

(2) Example 2.

A trench dug in Type B soil is 13 feet deep and five feet wide. From Table C–1.2 three acceptable arrangements of members are listed.

Arrangement #1

Space 6X6 crossbraces at six feet horizontally and five feet vertically.

Space 8X8 wales at five feet vertically.

Space 2X6 uprights at two feet horizontally.

Arrangement #2

Space 6X8 crossbraces at eight feet horizontally and five feet vertically.

Space 10X10 wales at five feet vertically.

Space 2X6 uprights at two feet horizontally.

Arrangement #3

Space 8X8 crossbraces at 10 feet horizontally and five feet vertically.

Space 10X12 wales at five feet vertically.

Space 2X6 uprights at two feet vertically.

(3) Example 3.

A trench dug in Type C soil is 13 feet deep and five feet wide.

From Table C–1.3 two acceptable arrangements of members can be used.

Arrangement #1

Space 8X8 crossbraces at six feet horizontally and five feet vertically.

Space 10X12 wales at five feet vertically.

Position 2X6 uprights as closely together as possible.

If water must be retained use special tongue and groove uprights to form tight sheeting.

Arrangement #2

Space 8X10 crossbraces at eight feet horizontally and five feet vertically.

Space 12X12 wales at five feet vertically.

Position 2X6 uprights in a close sheeting configuration unless water pressure must be resisted. Tight sheeting must be used where water must be retained.

(4) Example 4.

A trench dug in Type C soil is 20 feet deep and 11 feet wide. The size and spacing of members for the section of trench that is over 15 feet in depth is determined using Table C–1.3. Only one arrangement of members is provided.

Space 8X10 crossbraces at six feet horizontally and five feet vertically.

Space 12X12 wales at five feet vertically.

Use 3X6 tightsheeting.

Use of Tables C–2.1 through C–2.3 would follow the same procedures.

(g) Notes for all Tables.

1. Members sizes at spacings other than indicated are to be determined as specified in Section 1541.1(c), "Design of Protective Systems."

2. When conditions are saturated or submerged use Tight Sheeting. Tight Sheeting refers to the use of specially–edged timber planks (e.g., tongue and groove) at least three inches thick, steel sheet piling, or similar construction that when driven or placed in position provide a tight wall to resist the lateral pressure of water and to prevent the loss of backfill material. Close Sheeting refers to the placement of planks side–by–side allowing as little space as possible between them.

3. All spacing indicated is measured center to center.

4.. Wales to be installed with greater dimension horizontal.

5. If the vertical distance from the center of the lowest crossbrace to the bottom of the trench exceeds two and one–half feet, uprights shall be firmly embedded or a mudsill shall be used. Where uprights are embedded, the vertical distance from the center of the lowest crossbrace to the bottom of the trench shall not exceed 36 inches. When mudsills are used, the vertical distance shall not exceed 42 inches. Mudsills are wales that are installed at the toe of the trench side.

6. Trench jacks may be used in lieu of or in combination with timber crossbraces.

7. Placement of crossbraces. When the vertical spacing of crossbraces is four feet, place the top crossbrace no more than two feet below the top of the trench. When the vertical spacing of crossbraces is five feet, place the top crossbrace no more than 2.5 feet below the top of the trench.

TABLE C–1.1

TIMBER TRENCH SHORING — MINIMUM TIMBER REQUIREMENTS*
SOIL TYPE A $P_a$ = 25 X H + 72 psf (2 ft. Surcharge)

| DEPTH OF TRENCH (FEET) | SIZE (ACTUAL) AND SPACING OF MEMBERS ** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CROSS BRACES | | | | | | WALES | | UPRIGHTS | | | | | |
| | HORIZ. SPACING (FEET) | WIDTH OF TRENCH (FEET) | | | | | VERT. SPACING (FEET) | SIZE (IN) | VERT. SPACING (FEET) | MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) | | | | |
| | | UP TO 4 | UP TO 6 | UP TO 9 | UP TO 12 | UP TO 15 | | | | CLOSE | 4 | 5 | 6 | 8 |
| 5 TO 10 | UP TO 6 | 4X4 | 4X4 | 4X6 | 6X6 | 6X6 | 4 | Not Req'd | --- | | | | 2X6 | |
| | UP TO 8 | 4X4 | 4X4 | 4X6 | 6X6 | 6X6 | 4 | Not Req'd | --- | | | | | 2X8 |
| | UP TO 10 | 4X6 | 4X6 | 4X6 | 6X6 | 6X6 | 4 | 8X8 | 4 | | | 2X6 | | |
| | UP TO 12 | 4X6 | 4X6 | 6X6 | 6X6 | 6X6 | 4 | 8X8 | 4 | | | | 2X6 | |
| 10 TO 15 | UP TO 6 | 4X4 | 4X4 | 4X6 | 6X6 | 6X6 | 4 | Not Req'd | --- | | | | 3X8 | |
| | UP TO 8 | 4X6 | 4X6 | 6X6 | 6X6 | 6X6 | 4 | 8X8 | 4 | | 2X6 | | | |
| | UP TO 10 | 6X6 | 6X5 | 6X6 | 6X8 | 6X8 | 4 | 8X10 | 4 | | | 2X6 | | |
| | UP TO 12 | 6X6 | 6X6 | 6X6 | 6X8 | 6X8 | 4 | 10X10 | 4 | | | | 3X8 | |
| 15 TO 20 | UP TO 6 | 6X6 | 6X6 | 6X6 | 6X8 | 6X8 | 4 | 6X8 | 4 | 3X6 | | | | |
| | UP TO 8 | 6X6 | 6X6 | 6X6 | 6X8 | 6X8 | 4 | 8X8 | 4 | 3X6 | | | | |
| | UP TO 10 | 8X8 | 8X8 | 8X8 | 8X8 | 8X10 | 4 | 8X10 | 4 | 3X6 | | | | |
| | UP TO 12 | 8X8 | 8X8 | 8X8 | 8X8 | 8X10 | 4 | 10X10 | 4 | 3X6 | | | | |
| OVER 20 | SEE NOTE 1 | | | | | | | | | | | | | |

* Mixed oak or equivalent with a bending strength not less than 850 psi.
** Manufactured members of equivalent strength may by substituted for wood.



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TABLE C–1.2

TIMBER TRENCH SHORING — MINIMUM TIMBER REQUIREMENTS*
SOIL TYPE B $P_a$ = 45 X H + 72 psf (2 ft. Surcharge)

| DEPTH OF TRENCH (FEET) | SIZE (ACTUAL) AND SPACING OF MEMBERS** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CROSS BRACES | | | | | | WALES | | UPRIGHTS | | | | | |
| | HORIZ. SPACING (FEET) | WIDTH OF TRENCH (FEET) | | | | | VERT. SPACING (FEET) | SIZE (IN) | VERT. SPACING (FEET) | MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) | | | | |
| | | UP TO 4 | UP TO 6 | UP TO 9 | UP TO 12 | UP TO 15 | | | | CLOSE | 2 | 3 | | |
| 5 TO 10 | UP TO 6 | 4X6 | 4X6 | 6X6 | 6X6 | 6X6 | 5 | 6X8 | 5 | | | 2X6 | | |
| | UP TO 8 | 6X6 | 6X6 | 6X6 | 6X8 | 6X8 | 5 | 8X10 | 5 | | | 2X6 | | |
| | UP TO 10 | 6X6 | 6X6 | 6X6 | 6X8 | 6X8 | 5 | 10X10 | 5 | | | 2X6 | | |
| | See Note 1 | | | | | | | | | | | | | |
| 10 TO 15 | UP TO 6 | 6X6 | 6X6 | 6X6 | 6X8 | 6X8 | 5 | 8X8 | 5 | | 2X6 | | | |
| | UP TO 8 | 6X8 | 6X8 | 6X8 | 8X8 | 8X8 | 5 | 10X10 | 5 | | 2X6 | | | |
| | UP TO 10 | 8X8 | 8X8 | 8X8 | 8X8 | 8X10 | 5 | 10X12 | 5 | | 2X6 | | | |
| | See Note 1 | | | | | | | | | | | | | |
| 15 TO 20 | UP TO 6 | 6X8 | 6X8 | 6X8 | 8X8 | 8X8 | 5 | 8X10 | 5 | 3X6 | | | | |
| | UP TO 8 | 8X8 | 8X8 | 8X8 | 8X8 | 8X10 | 5 | 10X12 | 5 | 3X6 | | | | |
| | UP TO 10 | 8X10 | 8X10 | 8X10 | 8X10 | 10X10 | 5 | 12X12 | 5 | 3X6 | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| OVER 20 | SEE NOTE 1 | | | | | | | | | | | | | |

* Mixed oak or equivalent with a bending strength not less than 850 psi.
** Manufactured members of equivalent strength may by substituted for wood.



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TABLE C–1.3

TIMBER TRENCH SHORING — MINIMUM TIMBER REQUIREMENTS*
SOIL TYPE C $P_a$ = 80 X + 72 psf (2 ft. Surcharge)

| DEPTH OF TRENCH (FEET) | SIZE (ACTUAL) AND SPACING OF MEMBERS** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CROSS BRACES | | | | | | | | UPRIGHTS | | | | | |
| | HORIZ. SPACING (FEET) | WIDTH OF TRENCH (FEET) | | | | | VERT. SPACING (FEET) | SIZE (IN.) | VERT. SPACING (FEET) | MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) (See Note 2) | | | | |
| | | UP TO 4 | UP TO 6 | UP TO 9 | UP TO 12 | UP TO 15 | | | | CLOSE | | | | |
| 5 TO 10 | UP TO 6 | 6X8 | 6X8 | 6X8 | 8X8 | 8X8 | 5 | 8X10 | 5 | 2X6 | | | | |
| | UP TO 8 | 8X8 | 8X8 | 8X8 | 8X8 | 8X10 | 5 | 10X12 | 5 | 2X6 | | | | |
| | UP TO 10 | 8X10 | 8X10 | 8X10 | 8X10 | 10X10 | 5 | 12X12 | 5 | 2X6 | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| 10 TO 15 | UP TO 6 | 8X8 | 8X8 | 8X8 | 8X8 | 8X10 | 5 | 10X12 | 5 | 2X6 | | | | |
| | UP TO 8 | 8X10 | 8X10 | 8X10 | 8X10 | 10X10 | 5 | 12X12 | 5 | 2X6 | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| 15 TO 20 | UP TO 6 | 8X10 | 8X10 | 8X10 | 8X10 | 10X10 | 5 | 12X12 | 5 | 3X6 | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| OVER 20 | SEE NOTE 1 | | | | | | | | | | | | | |

* Mixed Oak or equivalent with a bending strength not less than 850 psi.
** Manufactured members of equivalent strength may be substituted for wood.



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TABLE C–2.1

TIMBER TRENCH SHORING — MINIMUM TIMBER REQUIREMENTS*
SOIL TYPE A $P_a$= 25 X + 72 psf (2 ft. Surcharge)

| DEPTH OF TRENCH (FEET) | SIZE (S4S) AND SPACING OF MEMBERS ** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CROSS BRACES | | | | | | WALES | | UPRIGHTS | | | | |
| | HORIZ. SPACING (FEET) | WIDTH OF TRENCH (FEET) | | | | VERT. SPACING (FEET) | SIZE (IN) | VERT. SPACING (FEET) | MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) | | | | |
| | | UP TO 4 | UP TO 6 | UP TO 9 | UP TO 12 | UP TO 15 | | | CLOSE | 4 | 5 | 6 | 8 |
| 5 TO 10 | UP TO 6 | 4X4 | 4X4 | 4X4 | 4X4 | 4X6 | 4 | Not Req'd | Not Req'd | | | | 4X6 | |
| | UP TO 8 | 4X4 | 4X4 | 4X4 | 4X6 | 4X6 | 4 | Not Req'd | Not Req'd | | | | | 4X8 |
| | UP TO 10 | 4X6 | 4X6 | 4X6 | 6X6 | 6X6 | 4 | 8X8 | 4 | | | 4X6 | | |
| | UP TO 12 | 4X6 | 4X6 | 4X6 | 6X6 | 6X6 | 4 | 8X8 | 4 | | | | 4X6 | |
| 10 TO 15 | UP TO 6 | 4X4 | 4X4 | 4X4 | 6X6 | 6X6 | 4 | Not Req'd | Not Req'd | | | | 4X10 | |
| | UP TO 8 | 4X6 | 4X6 | 4X6 | 6X6 | 6X6 | 4 | 6X8 | 4 | | 4X6 | | | |
| | UP TO 10 | 6X6 | 6X6 | 6X6 | 6X6 | 6X6 | 4 | 8X8 | 4 | | | 4X8 | | |
| | UP TO 12 | 6X6 | 6X6 | 6X6 | 6X6 | 6X6 | 4 | 8X10 | 4 | | 4X6 | | 4X10 | |
| 15 TO 20 | UP TO 6 | 6X6 | 6X6 | 6X6 | 6X6 | 6X6 | 4 | 6X8 | 4 | 3X6 | | | | |
| | UP TO 8 | 6X6 | 6X6 | 6X6 | 6X6 | 6X6 | 4 | 8X8 | 4 | 3X6 | 4X12 | | | |
| | UP TO 10 | 6X6 | 6X6 | 6X6 | 6X6 | 6X8 | 4 | 8X10 | 4 | 3X6 | | | | |
| | UP TO 12 | 6X6 | 6X6 | 6X6 | 6X8 | 6X8 | 4 | 8X12 | 4 | 3X6 | 4X12 | | | |
| OVER 20 | SEE NOTE 1 | | | | | | | | | | | | | |

* Douglas fir or equivalent with a bending strength not less than 1500 psi.
** Manufactured members of equivalent strength may be substituted for wood.



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TABLE C–2.2

TIMBER TRENCH SHORING — MINIMUM TIMBER REQUIREMENTS*
SOIL TYPE B $P_a$ = 45 X H 72 psf (2 ft. Surcharge)

| DEPTH OF TRENCH (FEET) | SIZE (S4S) AND SPACING OF MEMBERS ** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CROSS BRACES | | | | | | WALES | | UPRIGHTS | | | | |
| | HORIZ. SPACING (FEET) | WIDTH OF TRENCH (FEET) | | | | | VERT. SPACING (FEET) | SIZE (IN) | VERT. SPACING (FEET) | MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) | | | | |
| | | UP TO 4 | UP TO 6 | UP TO 9 | UP TO 12 | UP TO 15 | | | | CLOSE | 2 | 3 | 4 | 6 |
| 5 TO 10 | UP TO 6 | 4X6 | 4X6 | 4X6 | 6X6 | 6X6 | 5 | 6X8 | 5 | | | 3X12 4X8 | | 4X12 |
| | UP TO 8 | 4X6 | 4X6 | 6X6 | 6X6 | 6X6 | 5 | 8X8 | 5 | | 3X8 | | 4X8 | |
| | UP TO 10 | 4X6 | 4X6 | 6X6 | 6X6 | 6X8 | 5 | 8X10 | 5 | | | 4X8 | | |
| | See Note 1 | | | | | | | | | | | | | |
| 10 TO 15 | UP TO 6 | 6X6 | 6X6 | 6X6 | 6X8 | 6X8 | 5 | 8X8 | 5 | 3X6 | 4X10 | | | |
| | UP TO 8 | 6X8 | 6X8 | 6X8 | 8X8 | 8X8 | 5 | 10X10 | 5 | 3X6 | 4X10 | | | |
| | UP TO 10 | 6X8 | 6X8 | 8X8 | 8X8 | 8X8 | 5 | 10X12 | 5 | 3X6 | 4X10 | | | |
| | See Note 1 | | | | | | | | | | | | | |
| 15 TO 20 | UP TO 6 | 6X8 | 6X8 | 6X8 | 6X8 | 8X8 | 5 | 8X10 | 5 | 4X6 | | | | |
| | UP TO 8 | 6X8 | 6X8 | 6X8 | 8X8 | 8X8 | 5 | 10X12 | 5 | 4X6 | | | | |
| | UP TO 10 | 8X8 | 8X8 | 8X8 | 8X8 | 8X8 | 5 | 12X12 | 5 | 4X6 | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| OVER 20 | SEE NOTE 1 | | | | | | | | | | | | | |

* Douglas fir or equivalent with a bending strength not less than 1500 psi.
** Manufactured members of equivalent strength may be substituted for wood.



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TABLE C–2.3

TIMBER TRENCH SHORING — MINIMUM TIMBER REQUIREMENTS*
SOIL TYPE C $P_a$ = 25 X H + 72 psf (2 ft. Surcharge)

| DEPTH OF TRENCH (FEET) | SIZE (S4S) AND SPACING OF MEMBERS ** | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CROSS BRACES | | | | | | WALES | | UPRIGHTS | | | | | |
| | HORIZ. SPACING (FEET) | WIDTH OF TRENCH (FEET) | | | | VERT. SPACING (FEET) | SIZE (IN) | VERT. SPACING (FEET) | MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) | | | | | |
| | | UP TO 4 | UP TO 6 | UP TO 9 | UP TO 12 | UP TO 15 | | | CLOSE | | | | | |
| 5 TO 10 | UP TO 6 | 6X6 | 6X6 | 6X6 | 6X6 | 8X8 | 5 | 8X8 | 5 | 3X6 | | | | |
| | UP TO 8 | 6X6 | 6X6 | 6X6 | 8X8 | 8X8 | 5 | 10X10 | 5 | 3X6 | | | | |
| | UP TO 10 | 6X6 | 6X6 | 8X8 | 8X8 | 8X8 | 5 | 10X12 | 5 | 3X6 | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| 10 TO 15 | UP TO 6 | 6X8 | 6X8 | 6X8 | 8X8 | 8X8 | 5 | 10X10 | 5 | 4X6 | | | | |
| | UP TO 8 | 8X8 | 8X8 | 8X8 | 8X8 | 8X8 | 5 | 12X12 | 5 | 4X6 | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| 15 TO 20 | UP TO 6 | 8X8 | 8X8 | 8X8 | 8X10 | 8X10 | 5 | 10X12 | 5 | 4X6 | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| | See Note 1 | | | | | | | | | | | | | |
| OVER 20 | SEE NOTE 1 | | | | | | | | | | | | | |

* Douglas fir or equivalent with a bending strength not less than 1500 psi.
** Manufactured members of equivalent strength may be substituted for wood.

NOTE: Authority cited: Section 142.3, Labor Code. References: Section 142.3, Labor code.



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## Appendix D

### Aluminum Hydraulic Shoring for Trenches

(a) Scope. This appendix contains information that can be used when aluminum hydraulic shoring is provided as a method of protection against cave-ins in trenches that do not exceed 20 feet in depth. This appendix must be used when design of the aluminum hydraulic protective system cannot be performed in accordance with Section 1541.1(c)(2).

(b) Soil Classification. In order to use data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the soil classification method set forth in Appendix A of this Article.

(c) Presentation of Information. Information is presented in several forms as follows:

(1) Information is presented in tabular form in Tables D-1.1, D-1.2, D-1.3 and D-1.4. Each table presents the maximum vertical and horizontal spacings that may be used with various aluminum member sizes and various hydraulic cylinder sizes. Each table contains data only for the particular soil type in which the excavation or portion of the excavation is made. Tables D-1.1 and D-1.2 are for vertical shores in Types A and B soil. Tables D-1.3 and D-1.4 are for horizontal waler systems in Types B and C soil.

(2) Information concerning the basis of the tabular data and the limitations of the data is presented in Section (d) of this appendix.

(3) Information explaining the use of the tabular data is presented in Section (e) of this appendix.

(4) Information illustrating the use of the tabular data is presented in Section (f) of this appendix.

(5) Miscellaneous notations (footnotes) regarding Table D-1.1 through D-1.4 are presented in Section (g) of this appendix.

(6) Figures, illustrating typical installations of hydraulic shoring, are included just prior to the Tables. The illustrations page is entitled "Aluminum Hydraulic Shoring: Typical Installations."

(d) Basis and limitations of the data.

(1) Vertical shore rails and horizontal wales are those that meet the Section Modulus requirements in the D-1 Tables. Aluminum material is 6061-T6 or material of equivalent strength and properties.

(2) Hydraulic cylinders specifications.

(A) 2-inch cylinders shall be a minimum 2-inch inside diameter with a minimum safe working capacity of no less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(B) 3-inch cylinders shall be minimum 3-inch inside diameter with a safe working capacity of not less than 30,000 pounds axial compressive load at extensions as recommended by product manufacturer.

(3) Limitation of application.

(A) It is not intended that the aluminum hydraulic specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be otherwise designed as specified in Section 1541.1(c).

(B) When any of the following conditions are present, the members specified in the Tables are no considered adequate. In this case, an alternative aluminum hydraulic shoring system or other type of protective system must be designed in accordance with Section 1541.1.

1. When vertical loads imposed on crossbraces exceed a 100 pound gravity load distributed on a one foot section of the center of the hydraulic cylinder.

2. When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

3. When only the lower portion of a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

(e) Use of Tables D-1.1, D-1.2, D-1.3 and D-1.4. The members of the shoring system that are to be selected using this information are the hydraulic cylinders, and either the vertical shores or the horizontal wales. When a waler system is used the vertical timber sheeting to be used is also selected from these tables. The Tables D-1.1 and D-1.2 for vertical shores are used in Type A and B soils that do not require sheeting. Type B soils that may require sheeting, and Type C soils that always require sheeting, are found in the horizontal wale Tables D-1.3 and D-1.4. The soil type must first be determined in accordance with the soil classification system described in Appendix A to Section 1541.1. Using the appropriate table, the selection of the size and spacing of the members is made. The selection is based on the depth and width of the trench where the members are to be installed. In these tables the vertical spacing is held constant at four feet on center. The tables show the maximum horizontal spacing of cylinders allowed for each size of wale in the waler system tables, and in the vertical shore tables, the hydraulic cylinder horizontal spacing is the same as the vertical shore spacing.

(f) Example to Illustrate the Use of the Tables:

(1) Example 1.

A trench dug in Type A soil is 6 feet deep and 3 feet wide. From Table D-1.1: Find vertical shores and 2 inch diameter cylinders spaced 8 feet on center (o.c.) horizontally and 4 feet on center (o.c.) vertically. (See Figures 1 & 3 for typical installations.)

(2) Example 2:

A trench is dug in Type B soil that does not require sheeting, 13 feet deep and 5 feet wide. From Table D-1.2: Find vertical shores and 2 inch diameter cylinders spaced 6.5 feet o.c. horizontally and 4 feet o.c. vertically. (See Figures 1 & 3 for typical installations.)

(3) Example 3:

A trench is dug in Type B soil that does not require sheeting, but does experience some minor raveling of the trench face. The trench is 16 feet deep and 9 feet wide. From Table D-1.2: Find vertical shores and 2 inch diameter cylinder (with special oversleeves as designated by footnote #2) spaced 5.5 feet o.c. horizontally and 4 feet o.c. vertically. Plywood (per footnote (g)(7) to the D-1 Table) should be used behind the shores. (See Figures 2 & 3 for typical installations.)

(4) Example 4:

A trench is dug in previously disturbed Type B soil, with characteristics of a Type C soil, and will require sheeting. The trench is 18 feet deep, and 12 feet wide. 8 foot horizontal spacing between cylinders is desired for working space. From Table D-1.3: Find horizontal wale with a section modulus of 14.0 spaced at 4 feet o.c. vertically and 3 inch diameter cylinder spaced at 9 feet maximum o.c. horizontally. 3 x 12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

(5) Example 5:

A trench is dug in Type C soil, 9 feet deep and 4 feet wide. Horizontal cylinder spacing in excess of 6 feet is desired for working space. From Table D-1.4: Find horizontal wale with a section modulus of 7.0 and 2 inch diameter cylinders spaced at 6.5 feet o.c. horizontally. Or, find horizontal wale with a 14.0 section modulus and 3 inch diameter cylinder spaced at 10 feet o.c. horizontally. Both wales are spaced 4 feet o.c. vertically, 3x12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

(g) Footnotes, and general notes, for Tables D-1.1, D-1.2, D-1.3, and D-1.4.

(1) For applications other than those listed in the tables, refer to Section 1541.1(c)(2) for use of manufacturer's tabulated data. For trench depths in excess of 20 feet, refer to Section 1541.1(c)(2) and 1541.1(c)(3).

(2) 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

(3) Hydraulic cylinders capacities.

(A) 2–inch cylinders shall be a minimum 2–inch inside diameter with a safe working capacity of not less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(B) 3–inch cylinders shall be a minimum 3–inch inside diameter with a safe work capacity of not less than 30,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(4) All spacing indicated is measured center to center.

(5) Vertical shoring rails shall have a minimum section modulus of 0.40 inch.

(6) When vertical shores are used, there must be a minimum of three shores spaced equally, horizontally, in a group.

(7) Plywood shall be 1.125 inches thick of wood or 0.75 inch thick, 14 ply, arctic white birch (Finland form). Please note that plywood is not intended as a structural member, but only for prevention of local raveling (sloughing of the trench face) between shores. Equivalent material may be used if it has been approved in accordance with Section 1505(a).

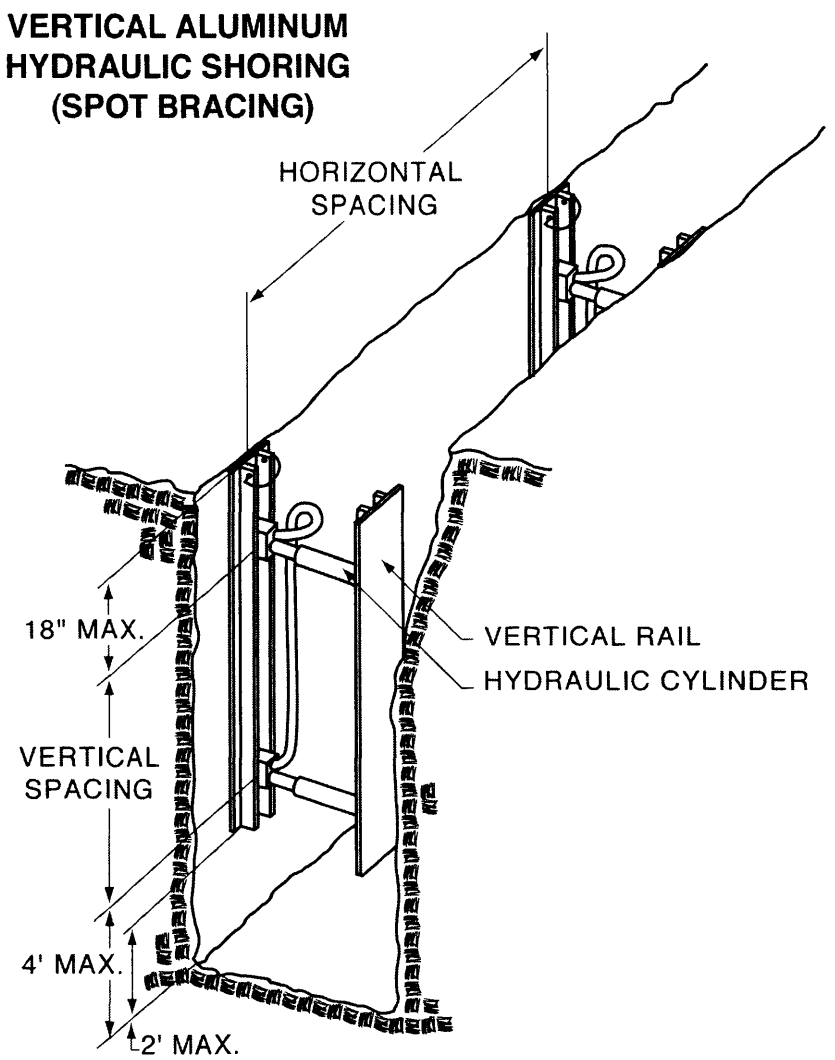
(8) See Appendix C for timber specifications.

(9) Wales are calculated for simple span conditions.

(10) See Appendix D, Section (d), for basis and limitations of the data.

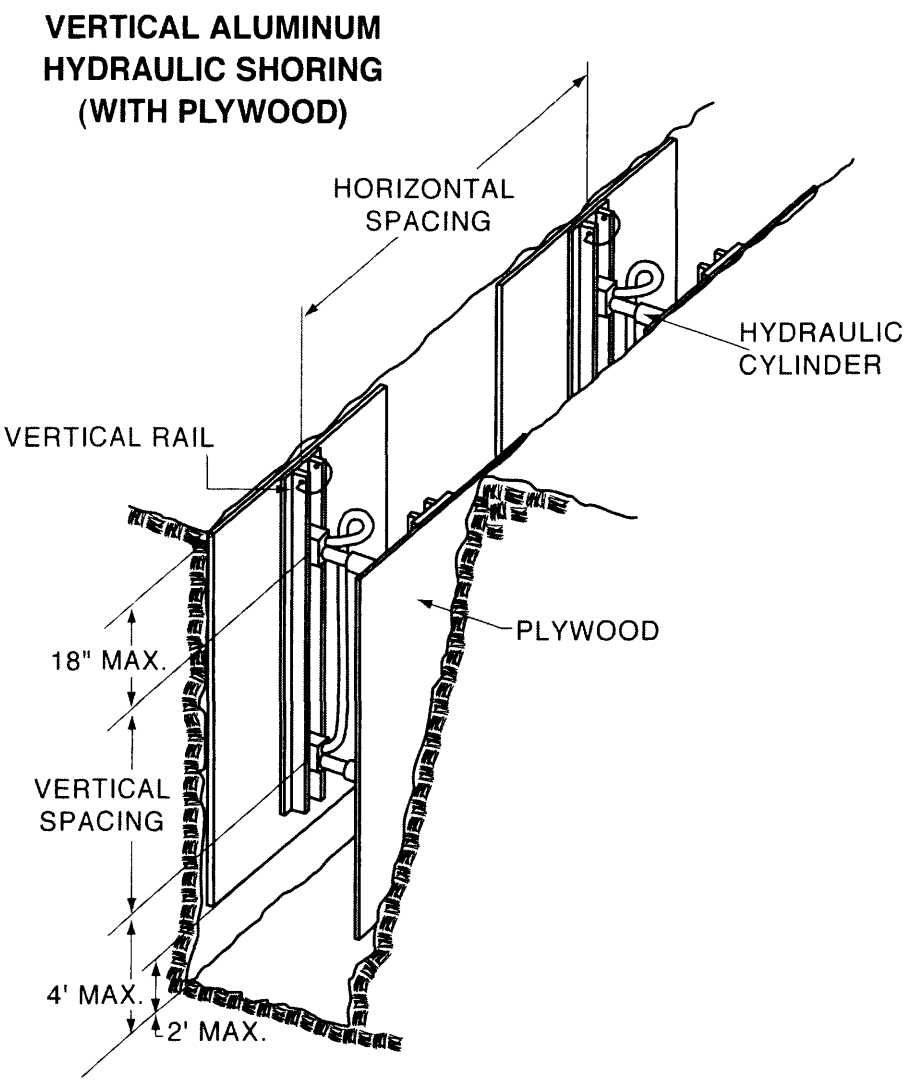
ALUMINUM HYDRAULIC SHORING
TYPICAL INSTALLATIONS

FIGURE NO. 1



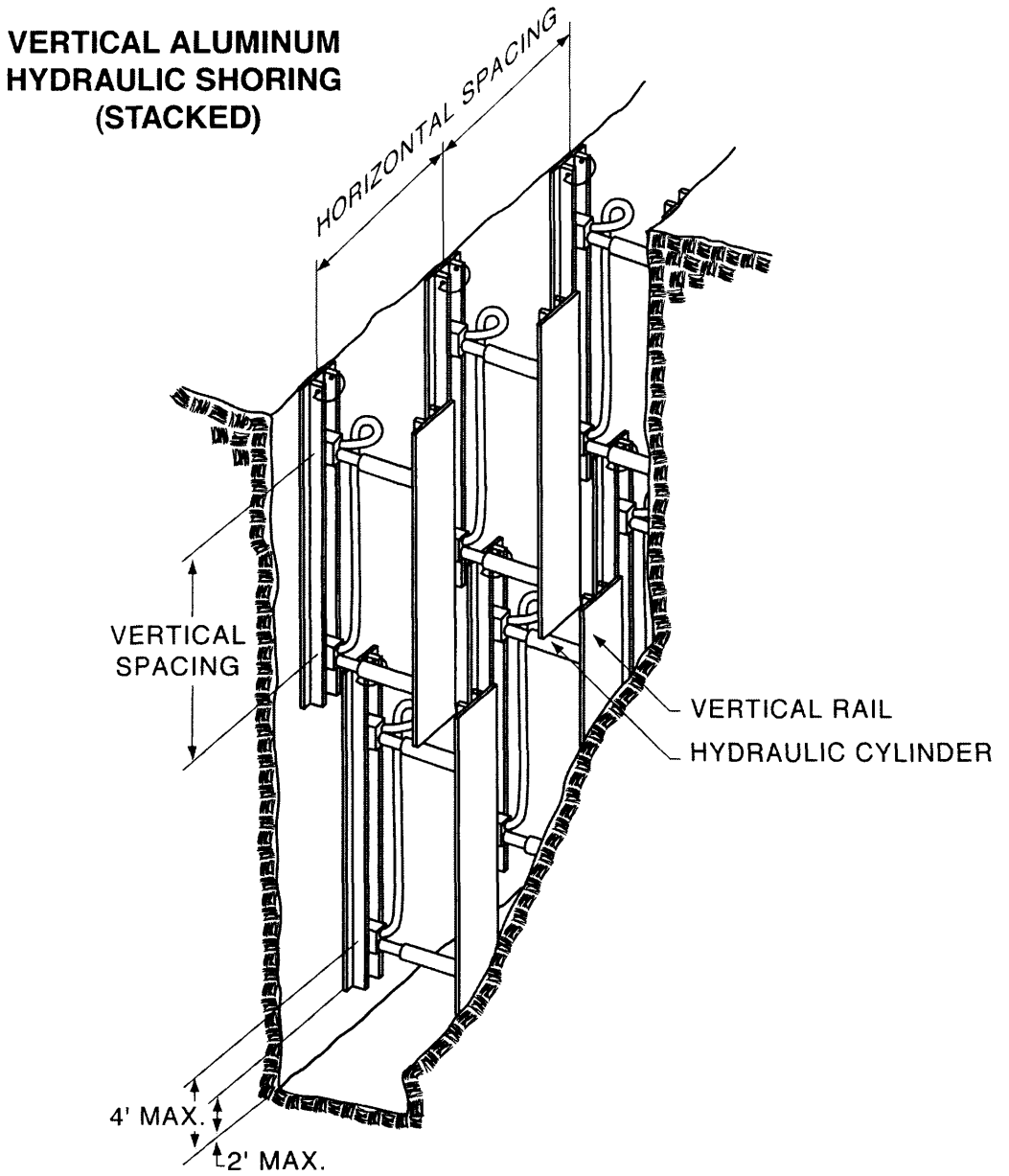
ALUMINUM HYDRAULIC SHORING
TYPICAL INSTALLATIONS

FIGURE NO. 2



ALUMINUM HYDRAULIC SHORING
TYPICAL INSTALLATIONS

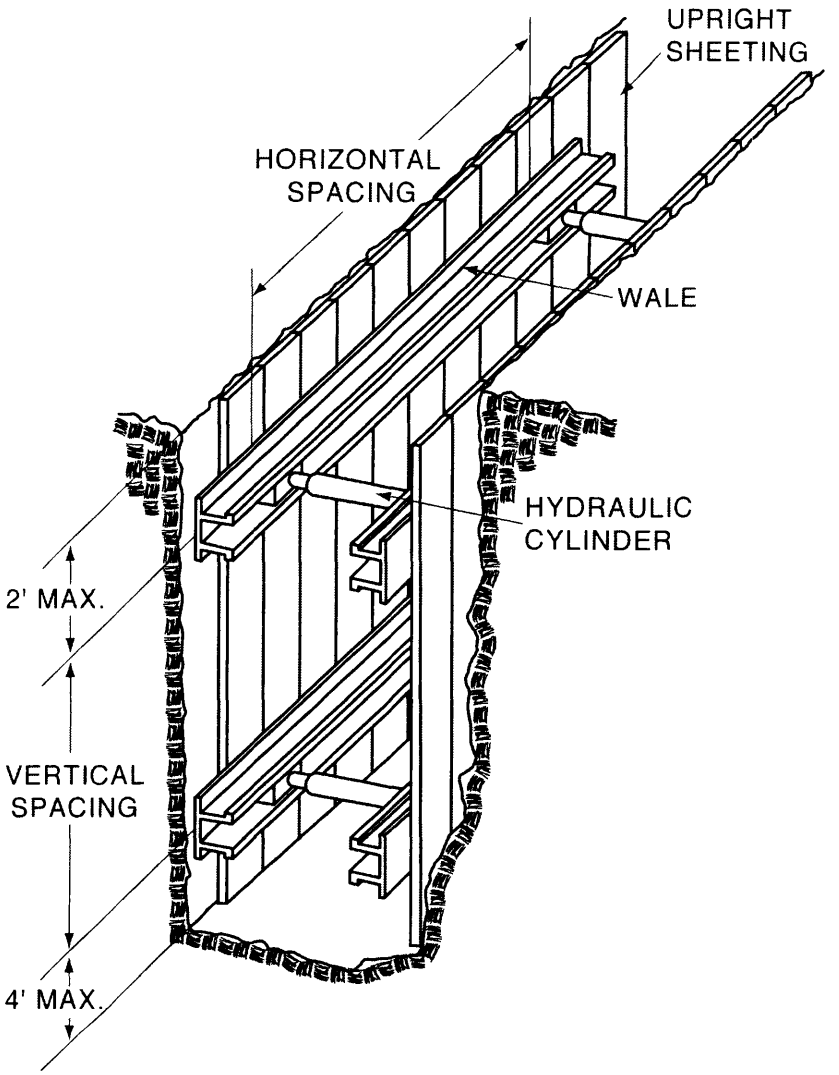
FIGURE NO. 3



ALUMINUM HYDRAULIC SHORING
TYPICAL INSTALLATIONS

FIGURE NO. 4

## ALUMINUM HYDRAULIC SHORING WALER SYSTEM (TYPICAL)




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

TABLE D –1.1

ALUMINUM HYDRAULIC SHORING
VERTICAL SHORES
FOR SOIL TYPE A

| DEPTH OF TRENCH (FEET) | HYDRAULIC CYLINDERS | | | | |
|---|---|---|---|---|---|
| | MAXIMUM HORIZONTAL SPACING (FEET) | MAXIMUM VERTICAL SPACING (FEET) | WIDTH OF TRENCH (FEET) | | |
| | | | UP TO 8 | OVER 8 UP TO 12 | OVER 12 UP TO 15 |
| OVER 5 UP TO 10 | 8 | 4 | 2 INCH DIAMETER | 2 INCH DIAMETER NOTE (2) | 3 INCH DIAMETER |
| OVER 10 UP TO 15 | 8 | | | | |
| OVER 15 UP TO 20 | 7 | | | | |
| OVER 20 | NOTE (1) | | | | |

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Note (1): See Appendix D, Item (g) (1)
Note (2): See Appendix D, Item (g) (2)

TABLE D –1.2

ALUMINUM HYDRAULIC SHORING
VERTICAL SHORES
FOR SOIL TYPE B

| DEPTH OF TRENCH (FEET) | HYDRAULIC CYLINDERS | | | | |
|---|---|---|---|---|---|
| | MAXIMUM HORIZONTAL SPACING (FEET) | MAXIMUM VERTICAL SPACING (FEET) | WIDTH OF TRENCH (FEET) | | |
| | | | UP TO 8 | OVER 8 UP TO 12 | OVER 12 UP TO 15 |
| OVER 5 UP TO 10 | 8 | 4 | 2 INCH DIAMETER | 2 INCH DIAMETER NOTE (2) | 3 INCH DIAMETER |
| OVER 10 UP TO 15 | 6.5 | | | | |
| OVER 15 UP TO 20 | 5.5 | | | | |
| OVER 20 | NOTE (1) | | | | |

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Note (1): See Appendix D, Item (g) (1)
Note (2): See Appendix D, Item (g) (2)



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TABLE D –1.3

ALUMINUM HYDRAULIC SHORING
WALER SYSTEMS
FOR SOIL TYPE B

| DEPTH OF TRENCH (FEET) | WALES | | HYDRAULIC CYLINDERS | | | | | | TIMBER UPRIGHTS** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | WIDTH OF TRENCH (FEET) | | | | | | MAX.HORIZ.SPACING (ON CENTER) | | |
| | VERTICAL SPACING (FEET) | * SECTION MODULUS ($IN^3$) | UP TO 8 | | OVER 8 UP TO 12 | | OVER 12 UP TO15 | | SOLID SHEET | 2 FT. | 3 FT. |
| | | | HORIZ. SPACING | CYLINDER DIAMETER | HORIZ. SPACING | CYLINDER DIAMETER | HORIZ. SPACING | CYLINDER DIAMETER | | | |
| OVER 5 UP TO 10 | 4 | 3.5 | 8.0 | 2 IN | 8.0 | 2 IN NOTE(2) | 8.0 | 3 IN | — | — | 3x12 |
| | | 7.0 | 9.0 | 2 IN | 9.0 | 2 IN NOTE(2) | 9.0 | 3 IN | | | |
| | | 14.0 | 12.0 | 3 IN | 12.0 | 3 IN | 12.0 | 3 IN | | | |
| OVER 10 UP TO 15 | 4 | 3.5 | 6.0 | 2 IN | 6.0 | 2 IN NOTE(2) | 6.0 | 3 IN | — | 3x12 | — |
| | | 7.0 | 8.0 | 3 IN | 8.0 | 3 IN | 8.0 | 3 IN | | | |
| | | 14.0 | 10.0 | 3 IN | 10.0 | 3 IN | 10.0 | 3 IN | | | |
| OVER 15 UP TO 20 | 4 | 3.5 | 5.5 | 2 IN | 5.5 | 2 IN NOTE(2) | 5.5 | 3 IN | 3x12 | — | — |
| | | 7.0 | 6.0 | 3 IN | 6.0 | 3 IN | 6.0 | 3 IN | | | |
| | | 14.0 | 9.0 | 3 IN | 9.0 | 3 IN | 9.0 | 3 IN | | | |
| OVER 20 | NOTE (1) | | | | | | | | | | |

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Notes (1): See Appendix D, item (g) (1)
Notes (2): See Appendix D, Item (g) (2)
* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

**Douglas fir or equivalent with a bending strength not less than 1500 psi.



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TABLE D –1.4

ALUMINUM HYDRAULIC SHORING
WALER SYSTEMS
FOR SOIL TYPE C

| DEPTH OF TRENCH (FEET) | WALES | | HYDRAULIC CYLINDERS | | | | | | TIMBER UPRIGHTS** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | WIDTH OF TRENCH (FEET) | | | | | | MAX.HORIZ SPACING (ON CENTER) | | |
| | VERTICAL SPACING (FEET) | SECTION MODULUS* ($IN^3$) | UP TO 8 | | OVER 8 UP TO 12 | | OVER 12 UP TO 15 | | SOLID SHEET | 2 FT. | 3 FT. |
| | | | HORIZ. SPACING | CYLINDER DIAMETER | HORIZ. SPACING | CYLINDER DIAMETER | HORIZ. SPACING | CYLINDER DIAMETER | | | |
| OVER 5 UP TO 10 | 4 | 3.5 | 6.0 | 2 IN | 6.0 | 2 IN NOTE(2) | 6.0 | 3 IN | 3x12 | — | — |
| | | 7.0 | 6.5 | 2 IN | 6.5 | 2 IN NOTE(2) | 6.5 | 3 IN | | | |
| | | 14.0 | 10.0 | 3 IN | 10.0 | 3 IN | 10.0 | 3 IN | | | |
| OVER 10 UP TO 15 | 4 | 3.5 | 4.0 | 2 IN | 4.0 | 2 IN NOTE(2) | 4.0 | 3 IN | 3x12 | — | — |
| | | 7.0 | 5.5 | 3 IN | 5.5 | 3 IN | 5.5 | 3 IN | | | |
| | | 14.0 | 8.0 | 3 IN | 8.0 | 3 IN | 8.0 | 3 IN | | | |
| OVER 15 UP TO 20 | 4 | 3.5 | 3.5 | 2 IN | 3.5 | 2 IN NOTE(2) | 3.5 | 3 IN | 3x12 | — | — |
| | | 7.0 | 5.0 | 3 IN | 5.0 | 3 IN | 5.0 | 3 IN | | | |
| | | 14.0 | 6.0 | 3 IN | 6.0 | 3 IN | 6.0 | 3 IN | | | |
| OVER 20 | NOTE (1) | | | | | | | | | | |

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Notes (1): See Appendix D, item (g) (1)
Notes (2): See Appendix D, Item (g) (2)
* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

**Douglas fir or equivalent with a bending strength not less than 1500 psi.

## Appendix E to Section 1541.1
### Alternatives to Timber Shoring

Figure 1. Aluminum Hydraulic Shoring

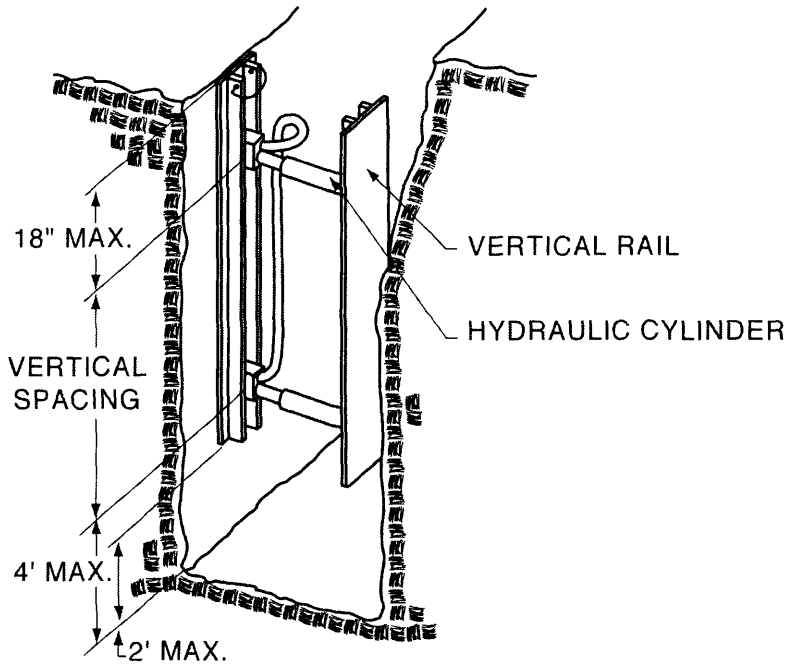



Figure 2. Pneumatic/hydraulic Shoring

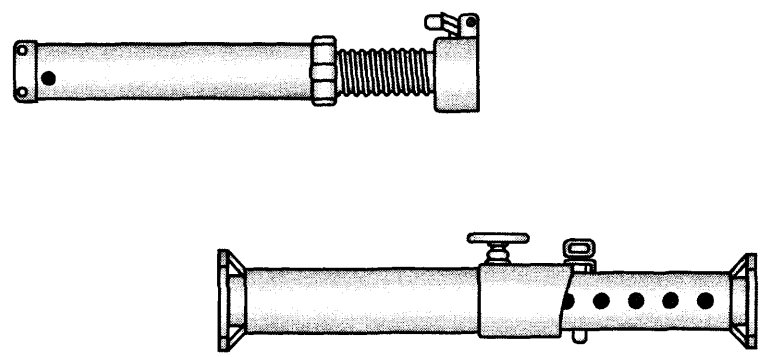


Figure 3. Trench Kacks (Screw Jacks)

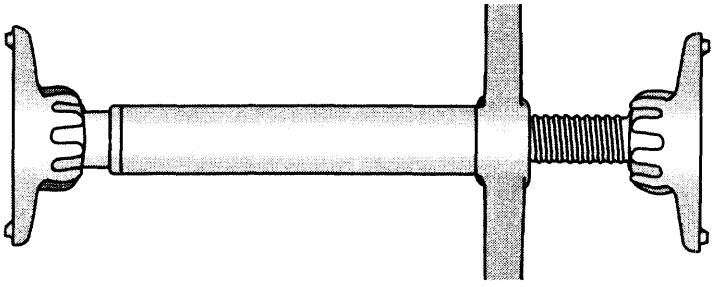
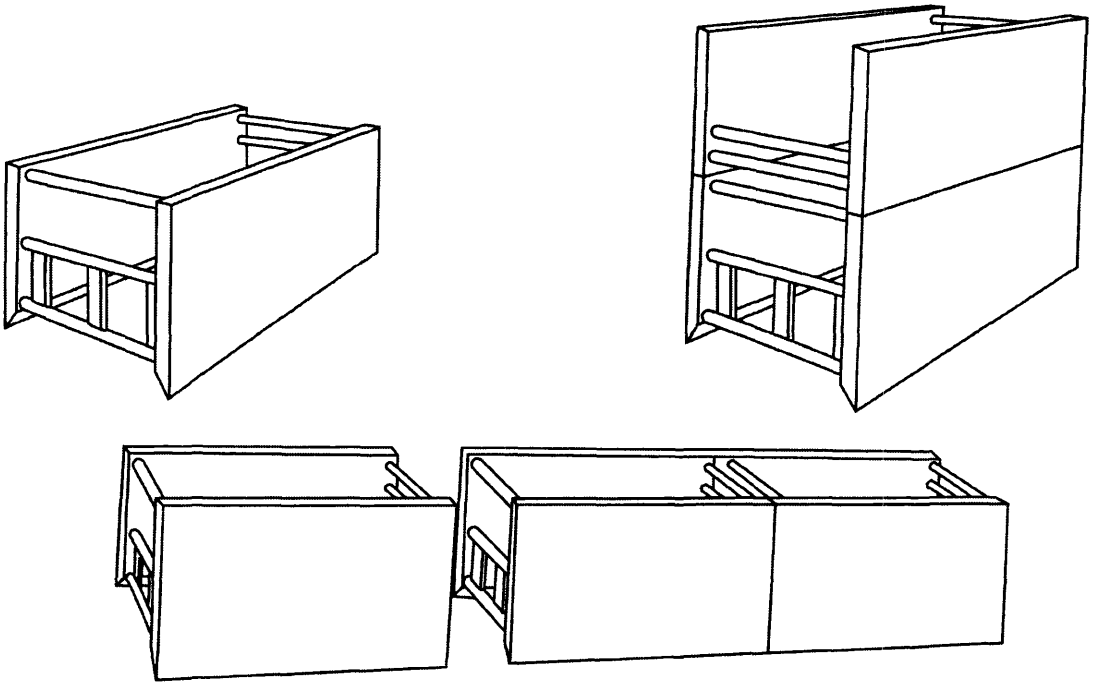


Figure 4. Trench Shields



NOTE: Authority Cited: Section 142.3, Labor Code. Reference 142.3, Labor Code.

## Appendix F to Section 1541.1
### Selection of Protective Systems

The following figures are a graphic summary of the requirements contained in Article 6 for excavations 20 feet or less in depth. Protective systems for use in excavations more than 20 feet in depth must be designed by a registered professional engineer in accordance Section 1541.1(b) and (c).

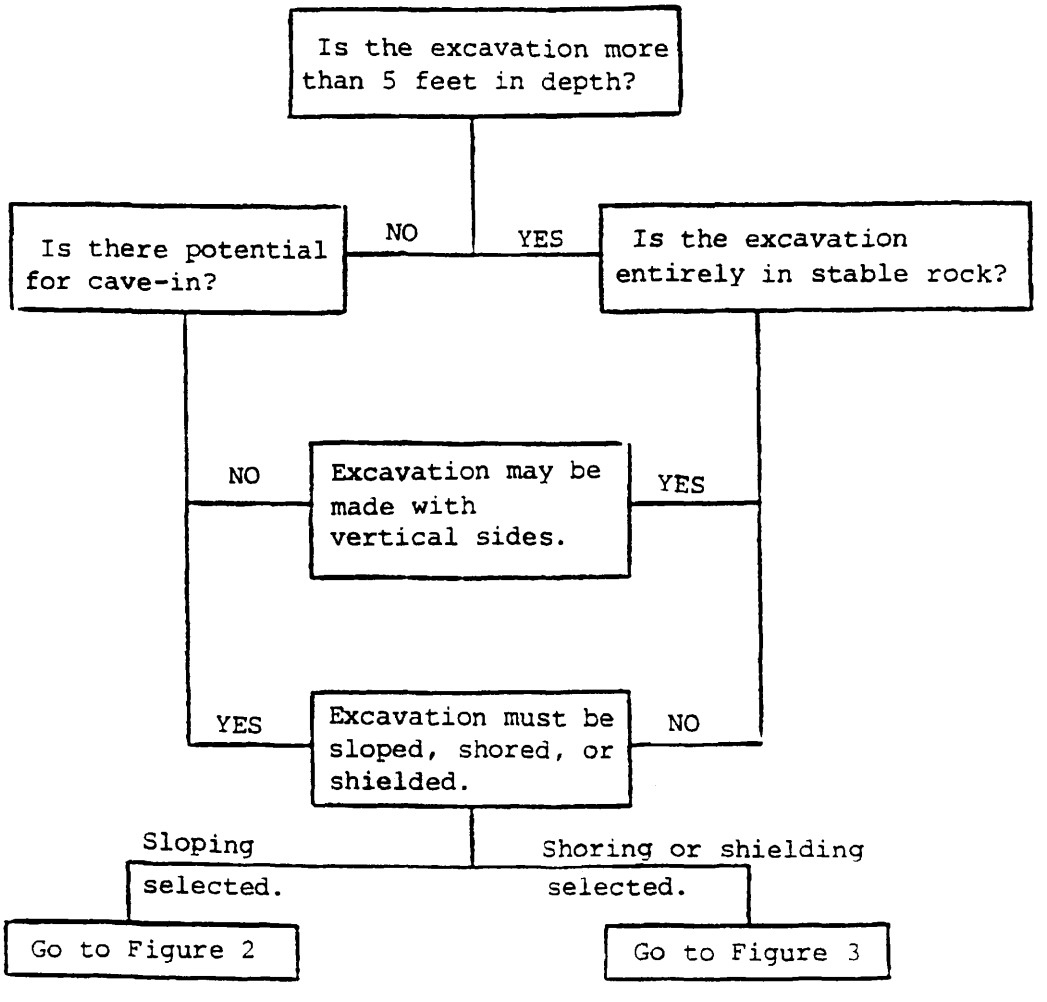



FIGURE 1 – PRELIMINARY DECISIONS

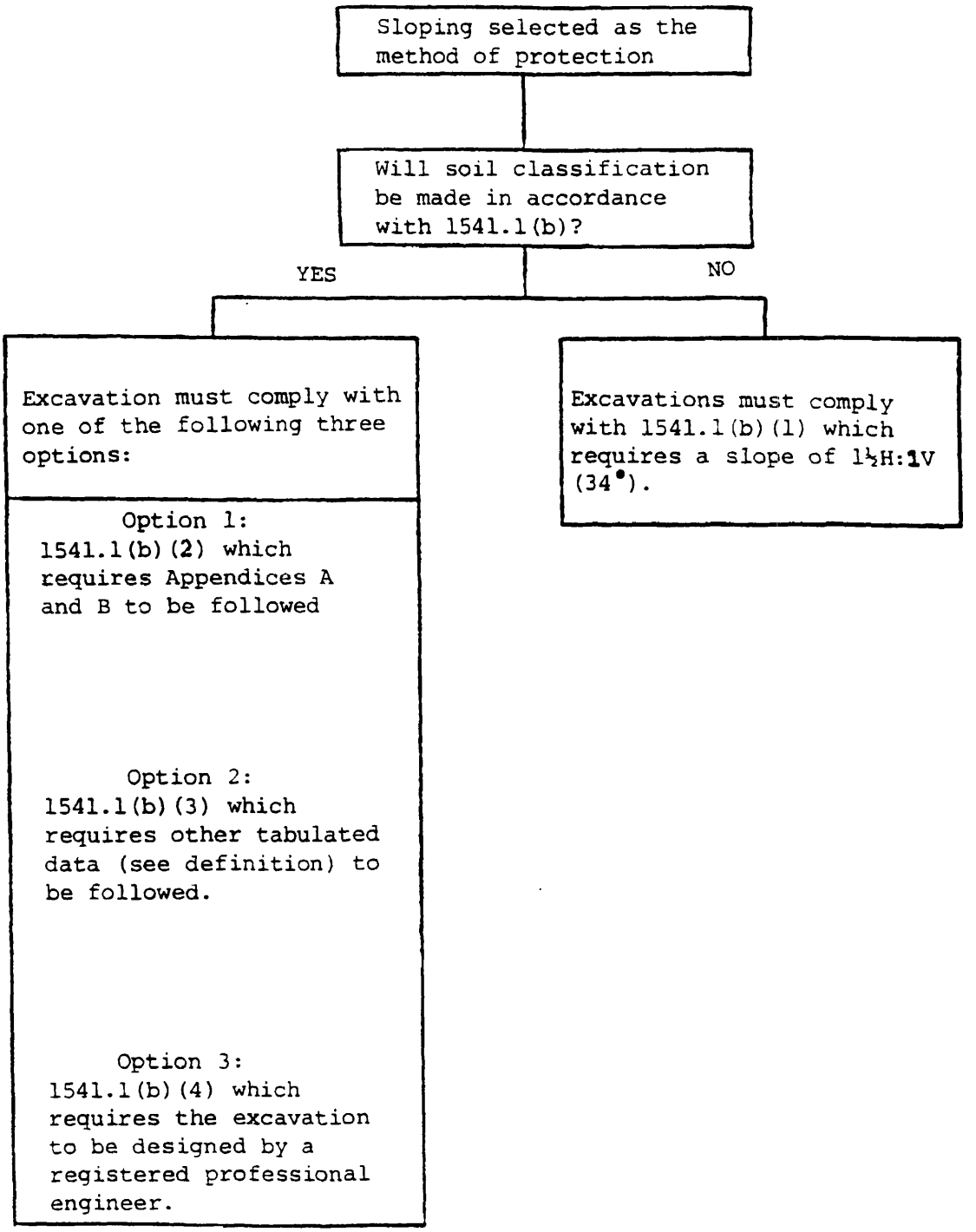



FIGURE 2 – SLOPING OPTIONS

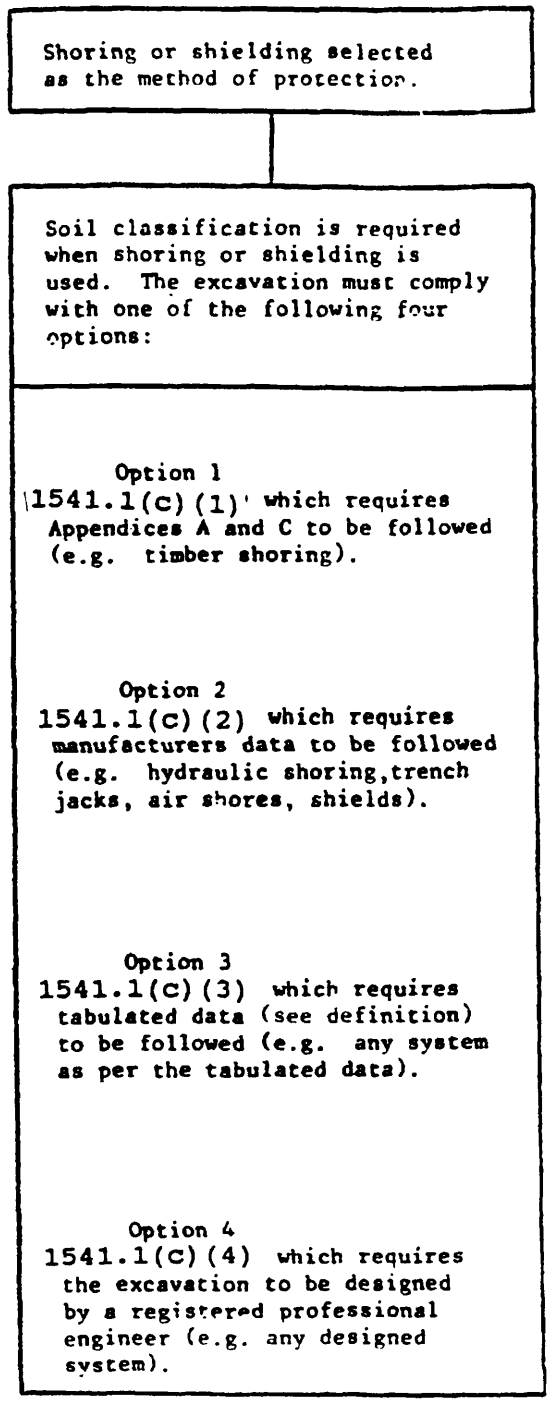



FIGURE 3 – SHORING AND SHIELDING OPTIONS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

## § 1542. Shafts.

(a) General.

(1) All wells or shafts over 5 feet in depth into which employees are permitted to enter shall be retained with lagging, spiling, or casing.

EXCEPTION: Exploration shafts; see Section 1542(d).

(2) The lagging, spiling or casing shall extend at least one foot above ground level and shall be provided the full depth of the shaft or at least five feet into solid rock if possible.

(3) All wells, pits, shafts, caissons, etc. shall be barricaded or securely covered.

(4) Upon completion of exploration and similar operations, temporary wells, pits, shafts, etc., shall be backfilled.

(b) Small Shafts in Hard Compact Soil.

Two-inch (nominal) cribbing may be used in square shafts not over 4 feet square in hard compact soil. Each member shall be cut 1/2 way through the width of the member and dovetailed into position so each member will act as a shore as well as lagging. Strips shall be nailed in each corner to prevent the boards from dropping down.

(c) Shafts in Other Than Hard Compact Soil.

(1) A system of lagging supported by braces and corner posts shall be used for square or rectangular shafts. Corner posts of 4-inch by 4-inch material are normally acceptable in shafts 4 feet square, or smaller, if they are braced in each direction with horizontal 4-inch by 4-inch members at intervals not exceeding 4 feet. Braces and corner posts in larger shafts shall be correspondingly larger as determined by a civil engineer.

(2) Round shafts shall be completely lagged with 2-inch material which is supported at intervals not greater than 4 feet by means of adjustable rings of metal or timber that are designed to resist the collapsing force, or cased in a manner that provides equivalent protection.

(d) Exploration Shafts. Only a geotechnical specialist shall be permitted to enter an exploration shaft without lagging, spiling or casing for the purpose of subsurface investigations under the following conditions:

(1) Initial Inspection. The type of materials and stability characteristics of the exploration shaft shall be personally observed and recorded by the geotechnical specialist during the drilling operation. Potentially unsafe exploration shafts shall not be entered.

(2) Surface Casing. The upper portion of the exploration shaft shall be equipped with a surface ring-collar to provide casing support of the material within the upper 4 feet of the exploration shaft. The ring-collar shall extend at least 1-foot above the ground surface.

(3) Gas Tests. Prior to entry into exploration shafts, tests and/or procedures shall be instituted to assure that the atmosphere within the shaft does not contain dangerous air contamination or oxygen deficiency. These tests and/or procedures shall be maintained while working within the shaft to assure that dangerous air contamination or oxygen deficiency will not occur. (See Section 5156 of the General Industry Safety Orders.)

(4) Unstable Local Conditions. The geotechnical specialist shall not descend below any portion of any exploration shaft where caving or groundwater seepage is noted or suspected.

(5) Ladder and Cable Descents. A ladder may be used to inspect exploration shafts 20 feet or less in depth. In deeper exploration shafts, properly maintained mechanical hoisting devices with a safety factor of at least 6 shall be provided and used. Such devices shall be under positive control of the operator being positive powered up and down with fail-safe brakes.

(6) Emergency Standby Employee. An emergency standby employee shall be positioned at the surface near the exploration shaft opening whenever a geotechnical specialist is inside the shaft.

(7) Communication. A two-way, electrically-operated communication system shall be in operation between the standby employee and the geotechnical specialist whenever boring inspections are being made in exploration shafts over 20 feet in depth or when ambient noise levels make communication difficult.

(8) Safety Equipment. The following safety equipment shall be used to protect the geotechnical specialist:

(A) An approved safety harness which will suspend a person upright and that is securely attached to the hoist cable.

(B) A 12-inch to 18-inch diameter steel coneshaped headguard/deflector that is attached to the hoist cable above the harness.

(C) A hoist cable having a minimum diameter of 5/16 inches.

(D) Approved head protection. (See Section 1515.)

(9) Electrical Devices. All electrical devices used within the exploration shaft by the geotechnical specialist shall be approved for hazardous locations.

(10) Surface Hazards. The storage and use of flammable or other dangerous materials shall be controlled at the surface to prevent them from entering the exploration shaft.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (e) filed 5-21-75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment filed 8-23-82; effective thirtieth day thereafter (Register 82, No. 35).
3. Amendment of subsection (a) and new subsection (e) filed 11-12-82; effective thirtieth day thereafter (Register 82, No. 46).
4. Repealer of subsection (a) NOTE, adoption of subsections (a)(3) and (a)(4), repealer of subsection (d) text and relettering filed 8-26-91; operative 9-25-91 (Register 92, No. 13).
5. Change without regulatory effect amending subsection (a)(1) filed 8-19-92; operative 8-19-92 (Register 92, No. 34).
6. Editorial correction of printing error restoring designation of subsection (d) (Register 92, No. 34).
7. Change without regulatory effect amending subsection (a)(1) Exception filed 2-22-93; operative 3-24-93 pursuant to title 1, section 100, California Code of Regulations (Register 93, No. 9).

## § 1543. Cofferdams.

(a) If overtopping of the cofferdam by high waters is possible, means shall be provided for controlled flooding of the work area.

(b) Warning signs for evacuation of employees in case of emergency shall be developed and posted.

(c) Cofferdam walkways, bridges, or ramps with at least two means of rapid exit, shall be provided with guardrails as specified in Section 1620.

(d) Cofferdams located close to navigable shipping channels shall be protected from vessels in transit, where possible.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section142.3, Labor Code.

HISTORY

1. New section filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 3). For history of former section, see Registers 82, No. 35 and 70, No.48.
2. Adoption of NOTE filed 8-26-91; operative 9-25-91 (Register 92, No. 13).

## § 1544. Earthwork and Excavating.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (a), (d) and (e) filed 8-23-82; effective thirtieth day thereafter (Register 82, No. 35).
2. Repealer filed 8-26-91; operative 9-25-91 (Register 92, No. 13).

## § 1545. Overburden.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 8-23-82; effective thirtieth day thereafter (Register 82, No. 35).
2. Repealer filed 8-26-91; operative 9-25-91 (Register 92, No. 13).

## § 1546. Face Inspection and Control.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (a), (d) and (e) filed 8-23-82; effective thirtieth day thereafter (Register 82, No. 35).
2. Repealer filed 8-26-91; operative 9-25-91 (Register 92, No. 13).

## § 1547. Protection of Workers at the Face.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8-23-82; effective thirtieth day thereafter (Register 82, No. 35).

2. Repealer filed 8–26–91; operative 9–25–91 (Register 92, No. 13).

## Article 7. Bins, Bunkers, Hoppers, and Material Storage

### § 1548. Bins, Bunkers, and Hoppers.

(a) Every open bin, bunker, hopper, and dangerous equipment whose upper edge is less than 36 inches above the floor or working level shall be equipped with a standard railing around its edges, or a grating or grille shall cover the top. Where grille or grating is the only protection, it shall have no opening whose least dimension exceeds 10 inches. Where railings are used they may be temporarily removed to provide necessary working openings.

(b) The grating or grille shall be of strength sufficient to withstand any load that is customarily imposed upon it.

(c) Where bins, bunkers, or hoppers are loaded by backing an automotive truck to one edge, there shall be installed bumper stops not less than 10 by 10 inches, securely fastened in a manner to prevent the truck overrunning the runway. At least 8– by 8–inch timbers or equivalent shall be securely fastened along the sides of the runway to prevent a truck overrunning the sides of the runway.

(d) Open Top Bins.

(1) Where employees are permitted or required to work in or above open top bins over 8 feet in depth, an upper working area consisting of a platform or walkway shall be provided, and shall be guarded with a standard railing and toeboard.

(2) Personal fall arrest or restraint systems complying with the requirements of Section 1670 shall be provided and used by employees when above requirements are not met.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (a), (d)(1) and (2) filed 4–11–84; effective thirtieth day thereafter (Register 84, No. 15).
2. Amendment of subsections (a) and (d)(2) filed 7–30–97; operative 8–29–97 (Register 97, No. 31).

### § 1549. Piling Material.

(a) Piles of brick, tile, masonry blocks, and similar material shall be stabilized against falling by the use of headers at least every sixth course. When a loose brick stack reaches a height of 4 feet, it shall be tapered back at least 2 inches in every foot of height above the 4–foot level. Brick stacks shall not be more than 7 feet in height. When masonry blocks are stacked higher than 6 feet, the stack shall be tapered back one–half block per tier above the 6–foot level.

(b) In piling bags of cement or other material more than 5 feet high, the face of the pile shall be tapered back (except where supported by walls or otherwise), or the sacks shall be so tied in horizontal layers as to prevent them from falling or collapsing.

(c) Piles of lumber, structural steel, and similar materials shall be maintained so that the stack is stable against falling or collapsing. Headers, crosspieces, or other means shall be used as needed in the pile to prevent slipping, tipping, or collapsing. Lumber piles shall not exceed 20 feet in height provided that lumber to be handled manually shall not be stacked more than 16 feet high.

(d) Sheetrock, plywood, trusses, and similar material shall not be stacked on edge unless positively secured against tipping or falling.

(e) Material inside buildings under construction shall not be placed within 6 feet of any hoistway or inside floor openings, nor within 10 feet of an exterior wall which does not extend above the top of the material unless the material is positively barricaded, placed, or secured to prevent it from falling.

(f) The maximum safe load limits of floors, or portions of floors, used for storage areas within buildings and structures, shall not be exceeded.

(g) Materials which may cause a hazardous reaction or unstable condition while in storage shall be segregated.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (a) and (c) and new subsections (e), (f), and (g) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment of subsections (c) and (e) filed 4–11–84; effective thirtieth day thereafter (Register 84, No. 15).

## Article 8. Explosives

### § 1550. Competency and Qualifications of Blasters.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 6710, Labor Code; and Section 12006, Health and Safety Code.

HISTORY

1. Repealer and new section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. New subsection (d) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
3. Amendment filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
4. Amendment of section and NOTE filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
5. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1551. Blaster's License—Qualifications.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).

### § 1552. Blaster's License.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 7991, Labor Code.

HISTORY

1. New section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer and new section filed 12–1–77; effective thirtieth day thereafter (Register 77, No. 49).
3. Repealer filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
4. Repealer and new NOTE filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1553. Expiration and Renewal.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer of subsection (c) filed 12–1–77; effective thirtieth day thereafter (Register 77, No. 49).
3. Repealer filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).

### § 1554. Custody of Blaster's License.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).

### § 1555. Blasting Accident Reports and Procedures.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Amendment filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
3. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1556. Suspension—Blaster's License.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28). Reference: Section 142.3, Labor Code.
2. Repealer filed 12–15–86; effective thirtieth day thereafter (Register 86, No.51).
3. Repealer of section and amendment of NOTE filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

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### § 1557. Labor Code Excerpts.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 7-12-74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).

### § 1560. Explosives—Place of Storage.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
2. New NOTE filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1561. Storage of Explosives.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 12006, Health and Safety Code.

HISTORY

1. Amendment filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
2. Amendment filed 6-26-97; operative 7-26-97 (Register 97, No. 26).
3. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1562. Construction and Use of Magazines.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
2. Amendment of section heading and section filed 6-26-97; operative 7-26-97 (Register 97, No. 26).
3. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1563. Construction and Use of Second-Class Magazines.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
2. Repealer filed 6-26-97; operative 7-26-97 (Register 97, No. 26).
3. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1564. Transportation of Explosive Materials.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (e) and (f), and new subsections (h), (i), (j) and (k) filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment of subsections (d), (f), (g), (h) and (l) filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
3. Amendment of section heading and section filed 6-26-97; operative 7-26-97 (Register 97, No. 26).
4. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1565. Handling and Use of Explosive Materials.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsections (l), (m), (n), (o) and (p) filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
3. Amendment of section heading and section filed 6-26-97; operative 7-26-97 (Register 97, No. 26).
4. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1566. Blasting Signals.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsection (e) filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment of subsection (d) filed 1-26-79 as an emergency; effective upon filing (Register 79, No. 4).
3. Certificate of Compliance filed 4-27-79 (Register 79, No. 17).
4. Amendment of subsection (d) filed 9-5-79; effective thirtieth day thereafter (Register 79, No. 36).
5. Amendment of subsection (d) filed 7-1-81; effective thirtieth day thereafter (Register 81, No. 27).
6. New subsection (f) filed 10-5-81; effective thirtieth day thereafter (Register 81, No. 41).
7. Amendment filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
8. Amendment of subsections (a), (c) and (f) filed 6-26-97; operative 7-26-97 (Register 97, No. 26).
9. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1567. Explosive Materials, Loading Machines, and Methods.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (c) filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment of subsections (a), (e), (h), (i) and (l) filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
3. Amendment of subsection (c) filed 4-26-90; operative 4-26-90 pursuant to Government Code section 11346.2 (d) (Register 90, No. 22).
4. Amendment of section heading and section filed 6-26-97; operative 7-26-97 (Register 97, No. 26).
5. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1568. Misfires.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsections (d) and (e) filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment of subsections (a) and (c) filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
3. Amendment of subsections (a) and (c) filed 6-26-97; operative 7-26-97 (Register 97, No. 26).
4. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1569. Secondary Blasting.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
2. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1570. Ammonium Nitrate.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
2. Amendment filed 6-26-97; operative 7-26-97 (Register 97, No. 26).
3. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1571. Fuse Blasting.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
2. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1571.1. Use of Detonating Cord.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 3-28-75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment of subsections (a), (b), (d), (e) and (g) filed 7-26-85; effective thirtieth day thereafter (Register 85, No. 30).
3. Repealer filed 7-11-2003; operative 8-10-2003 (Register 2003, No. 28).

### § 1571.2. Underwater Blasting.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment of NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
3. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1571.3. Blasting in Excavation Work Under Compressed Air.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment of subsections (b) and (d) filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
3. Amendment of subsections (b) and (d) and new subsection (f) filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
4. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1572. Deteriorated or Damaged Explosives.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
2. Amendment of subsections (b) and (c) filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
3. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1573. Electric Blasting.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsections (h), (i) and (j) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
3. Amendment of subsection (d), repealer of subsection (h), subsection relettering, and amendment of newly designated subsection (h) filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
4. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1573.1. Blasting with Light or Power Circuit.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Relocation and amendment of former Appendix C, Plate C–28 to new section 1573.1 filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
2. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1573.2. Permanent and Temporary Wiring for Electric Shot Firing.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Relocation and amendment of former Appendix C, Plate C–29 to new section 1573.2 filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
2. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1574. Use of Blasting Machine.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
2. New NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
3. Amendment filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
4. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1575. Blasting with Battery.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
2. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1576. Short–Circuiting Bus Wires and Lead Wires.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
2. Amendment filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
3. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1577. Tests.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
2. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1578. Retreat from and Return to Site.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
2. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1579. Electric Blasting in Proximity with Radio Transmitters.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 7–8–81; effective thirtieth day thereafter (Register 81, No. 28).
2. Amendment of NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
3. Amendment of subsections (a), (c) and (e) filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
4. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

### § 1580. Electrical Storms.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
2. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

## Article 9. Derricks, Cranes, Boom–Type Excavators

(Refer to Article 15 and Index for Additional Crane Orders)

For regulations pertaining to derricks, cranes, and boom–type excavators at projects or operations to which the Construction Safety Orders apply, see Group 13 of the General Industry Safety Orders

### § 1581. Scope.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of Article 9 (Sections 1585–1589) and new Article 9 (Sections 1581–1589, not consecutive) filed 12–8–72; effective thirtieth day thereafter (Register 72, No. 50). For prior history, see Register 70, Nos. 25 and 40.
2. Repealer of subsection (b) and new subsection (b) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
3. Amendment filed 10–12–84; effective thirtieth day thereafter (Register 84, No. 41).
4. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1581.1. Derricks.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1581.2. Rated Load Marking.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Editorial correction of subsection (a) filed 6–10–83; effective thirtieth day thereafter (Register 83, No. 24).
2. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1581.3. Hoisting Ropes.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1581.4. Access to Sheaves, Bearings, and Blocks.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1581.5. Derrick Signals.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
2. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582. Boom–Type Mobile Cranes.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.1. Operating Controls.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.2. Crane Boomstops.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.3. Load Rating Chart.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment of subsection (a) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment of subsection (a) filed 4–28–81; effective thirtieth day thereafter (Register 81, No. 18).
3. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.4. Load Safety Devices.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment of subsections (a) and (c) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment of subsection (c) filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
3. Amendment filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
4. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.5. Operator's Cab.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.6. Access to Operator's Position, Machine House and/or Boom Blocks.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.7. Couplers.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.8. Boom Hoist Mechanisms.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.9. Load Hoist Drums.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.10. Load Hoist Brakes.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.11. Power–Controlled Lowering.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.12. Adjustments.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.13. Swing Control.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.14. Swing Brake and Locking Device.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.15. Travel Brakes and Locks.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.16. Sheave Guards.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.17. Warning Device.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.18. Wheel Guards.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.19. Truck Wedges or Jacks.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.20. Fire Extinguisher.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1582.21. Lighting.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1583. Cranes Used in Demolition Work.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1584. Climbing or Tower Cranes.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsections (h) and (i) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment of subsection (i) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
3. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1584.1. Erection and Operation.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1584.2. Unattended Booms.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1584.3. Safety Devices.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

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HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1584.4. Electrical Grounding.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1584.5. Maintenance.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585. Hydraulic Cranes and Excavators.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585.1. Hoist Mechanisms.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585.2. Load Lowering.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585.3. Boom Hoist and Supporting Mechanism.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585.4. Swing Lock and Swing Brake.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585.5. Controls.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585.6. Brakes.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585.7. Front–End Operating Equipment.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585.8. Hydraulic Relief Valves.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1585.9. Hydraulic Hose, Fittings, and Tubing Inspection.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1586. Barge Mounted Cranes.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1586.1. Permanently Mounted Floating Cranes and Derricks.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1586.2. Life Buoys.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587. Operating Rules.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.1. Traveling.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.2. Boom Assembly.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.3. Swinging.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.4. Hoisting.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Amendment of subsection (a) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.5. Slide Areas.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.6. Driver's Position.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.7. Crane Capacity.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.8. Fire Extinguisher.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.
HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.9. Refueling.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.10. Handling Loads.

HISTORY
1. Amendment of subsection (j) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.11. Limit Switches.

HISTORY
1. Amendment of subsection (a) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.12. Signals.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment of subsection (d) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
2. Amendment of subsections (a) and (c) filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
3. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.13. Overhead Loads.

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY
1. Amendment filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment filed 5–5–81; effective thirtieth day thereafter (Register 81, No. 19).
3. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.14. High Voltage.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment of subsection (a) and new subsection (b) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment of subsection (a) filed 3–7–80; effective thirtieth day thereafter (Register 80, No. 10).
3. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1587.15. Operational Testing.

HISTORY
1. Amendment of subsection (a) and new subsections (b) and (c) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588. Operators—Qualifications.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588.1. Operating Practices.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588.2. Certificate of Operation of Power–Operated Cranes, Derricks, and Cableways.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New subsections (c), (d) and (e) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment of subsection (a) filed 10–4–78 as procedural and organizational; effective upon filing (Register 78, No. 40).
3. Amendment of subsection (b) and new NOTE filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
4. Amendments of subsection (e) filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
5. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588.3. Unit Proof Test and Examination of Cranes and Their Accessory Gear.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment of subsections (b), (c) and (d)(5) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer of subsection (d)(12) and renumbering of subsections (d)(13), (14), (15) to subsections (d)(12), (13), (14) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
3. Amendment of subsection (c) filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
4. Amendment of subsection (c) filed 9–5–79 as procedural and organizational; effective upon filing (Register 79, No. 36).
5. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588.4. Unit Proof Test and Examination of Derricks and Their Accessory Gear.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588.5. Certificates.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
2. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588.6. Inspection.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Editorial correction (Register 79, No. 15).
3. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588.7. Maintenance.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588.8. Adjustments and Repairs.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1588.9. Damaged Booms.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

### § 1589. Loading or Lifting Devices.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New subsection (d) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

## Article 10. Haulage and Earth Moving

(Applicable Orders included in this Article shall apply to such equipment as haulage vehicles, scrapers, loaders, crawler or wheeled tractors, bulldozers, graders and similar equipment)

## § 1590. Haulage and Earth Moving, General.

(a) Private Roadways and Off–Highway Conditions.

(1) Single–lane private roads with two–way traffic shall be provided with turnouts. Where turnouts are not practicable, a control system shall be provided to prevent vehicles from meeting on such single–lane roads.

(2) On private roads used for two–way traffic, arrangements shall be such that vehicles travel on the right side as much as possible. Signs shall be posted to clearly indicate variations from this system. Where practicable, separate haulage roads shall be provided between loaded and empty units. Haulage roads shall be wide enough to allow for safe passage. Safe distances between moving units shall be maintained.

NOTE: Left hand traffic patterns are permitted provided that vehicle operators are advised of the pattern and job site conditions warrant that the procedure is safe.

(3) Private roads shall be maintained free from holes and ruts that affect the safe control of the vehicle. Every emergency access ramp and berm used by an employer shall be constructed to restrain and control runaway vehicles.

(4) Where a hazard exists to employees because of traffic or haulage conditions, a system of traffic controls shall be required so as to abate the hazard. (See Section 1598(b)).

NOTE: Nothing in this subsection shall preclude the use of additional signs that are not included in the Manual referenced in Section 1598(b). Examples: "Haul Road," "Left Hand Pattern," "Scraper Crossing," etc.

(5) Employees, such as grade–checkers, surveyors and others exposed to vehicular traffic, shall wear flagging garments, or equivalent, as required for flaggers. (See Section 1598(c)).

NOTE: See Index No. 5–07 of the Manual referenced in Section 1598.

(b) Dust Control. Action shall be taken to prevent dust from seriously reducing visibility. In dusty operations, equipment operators shall use adequate respiratory protection.

(c) Equipment Control.

(1) Equipment shall be under control at all times and shall be kept in gear when descending grades.

(2) No vehicle shall be driven at a speed greater than is reasonable and proper, with due regard for weather, traffic, intersections, width and character of the roadway, type of motor vehicle, and any other existing conditions.

(d) Exhaust. Arrangements shall be made to direct exhaust gases away from the operator's breathing zone.

(e) Heat Shields. When push–tractors are working in tandem, heat shields, or equivalent protection, shall be provided for operators.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (e) and new subsections (f), (g) and (h) filed 10–2–70; effective thirtieth day thereafter (Register 70, No. 40).
2. Amendment of subsections (a) and (d) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
3. Repealer and new section filed 11–12–75; effective thirtieth day thereafter (Register 75, No. 46).
4. Amendment of subsections (a) and (c) filed 2–7–86; effective thirtieth day thereafter (Register 86, No. 6).

## § 1591. Haulage Vehicles, Equipment–Construction and Maintenance.

(a) Windshields complying with the applicable provisions of the Vehicle Code shall be provided and maintained on haulage vehicles and scrapers.

(b) Equipment and accessories installed on haulage vehicles shall be arranged so as to avoid impairing the driver's operational vision to the front or sides.

(c) Brakes, General. Service brake systems for self–propelled, rubber–tired, off–highway equipment manufactured before January 1, 1972 (for scrapers January 1, 1971) shall meet minimum performance criteria for service brake systems as set forth in the Society of Automotive Engineers Recommended Practices listed below. Service, emergency and parking brake systems for self–propelled, rubber–tired, off–highway equipment manufactured after January 1, 1972 (for scrapers January 1, 1971) shall meet the applicable minimum performance criteria for each system as set forth in the same Society of Automotive Engineers Recommended Practices:

| | |
|---|---|
| Self–Propelled Graders | SAE J236–1971 |
| Trucks and Wagons | SAE J166–1971 |
| Front–End Loaders & Dozers | SAE J237–1971 |
| Self–Propelled Scrapers | SAEJ319b–1971 |

NOTE: Equipment that meets the performance criteria of SAE Recommended Practice J1152–APR 1980, Braking Performance—Rubber–Tired Construction Machines, satisfies the requirements of this Section.

(d) Air Tank Service. Liquids should be drained automatically from vehicle's compressed air tanks, but if such automatic equipment is not provided, the tanks shall be drained manually at least once each operating shift.

(e) Cab Shield. Haulage vehicles, whose pay load is loaded by means of cranes, power shovels, loaders, or similar equipment, shall have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.

(f) Fenders. Fenders complying with the following standards from SAE Recommended Practice J321, November, 1967 or J321b April, 1978, shall be provided on new scrapers, carryalls, related power units, and trailed hauling units manufactured and placed into service after January 1, 1971.

(g) Lights. Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition.

(h) Canopy. Crawler tractors, bulldozers, carryalls and similar equipment manufactured and used prior to April 1, 1971, except for scrapers, front–end loaders and new equipment covered by 1596, shall have canopy protection and seat belts for the operator when used where there is exposure to falling or rolling objects.

(i) Operating Levers. Operating levers controlling hoisting or dumping devices on haulage bodies shall be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism.

(j) Trip Handles. Trip handles for tailgates of dump trucks shall be so arranged that in dumping, the operator will not be exposed either to the hazard of being struck by falling material or any part of the truck.

(k) Dump Bodies. Haulage vehicles equipped with dump bodies that tilt to release their load by gravity through an opening at the rear or side shall be provided with a device that gives the operator a clearly audible or visible warning when sufficient force is applied by the elevating mechanism to cause or sustain dump body elevation.

(*l*) Hazard Signals. Tractor–scrapers (self–propelled) pushed by other equipment during loading operations shall be provided with a clearly audible or visible warning device that can be activated by the operator of the tractor–scraper to communicate an "ALL STOP" warning to the pushing equipment in event of an emergency.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of subsection (d), renumbering of subsections (e)–(k) to subsections (d)–(j), and new subsections (k) and (l) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12). For prior history, see Register 75, No. 21.
2. Amendment of subsection (k) EXCEPTION filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
3. Editorial correction of subsection (k) (Register 79, No. 24).
4. Repealer and new subsections (k) and ( l) filed 5–6–81; effective thirtieth day thereafter (Register 81, No. 19).
5. Amendment of subsections (a)–(g) filed 2–7–86; effective thirtieth day thereafter (Register 86, No. 6).

## § 1592. Warning Methods.

(a) Every vehicle with a haulage capacity of 2 1/2 cubic yards or more used to haul dirt, rock, concrete, or other construction material shall be equipped with a warning device that operates automatically while the vehicle is backing. The warning sound shall be of such magnitude that it will normally be audible from a distance of 200 feet and will sound immediately on backing. In congested areas or areas with high ambient noise which obscures the audible alarm, a signaler, in clear view of the operator, shall direct the backing operation.

(b) Those vehicles not subject to 1592(a) and operating in areas where their backward movement would constitute a hazard to employees working in the area on foot, and where the operator's vision is obstructed to the rear of the vehicle shall be equipped with an effective device or method to safeguard employees such as:

(1) An automatic back–up audible alarm which would sound immediately on backing, or

(2) An automatic braking device at the rear of the vehicle that will apply the service brake immediately on contact with any obstruction to the rear, or

(3) In lieu of 1 or 2 above, administrative controls shall be established such as:

(A) A spotter or flagger in clear view of the operator who shall direct the backing operation, or

(B) Other procedures which will require the operator to dismount and circle the vehicle immediately prior to starting a back–up operation, or

(C) Prohibiting all foot traffic in the work area.

(4) Other means shall be provided that will furnish safety equivalent to the foregoing for personnel working in the area.

(c) All vehicles shall be equipped with a manually operated warning device which can be clearly heard from a distance of 200 feet.

(d) The operator of all vehicles shall not leave the controls of the vehicle while it is moving under its own engine power.

(e) Hauling or earth moving operations shall be controlled in such a manner as to ensure that equipment or vehicle operators know of the presence of rootpickers, spotters, lab technicians, surveyors, or other workers on foot in the areas of their operations.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsections (c) and (d) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Repealer and new section filed 7–3–80; effective thirtieth day thereafter (Register 80, No. 27).
3. Amendment of subsections (a), (b) and (e) filed 2–7–86; effective thirtieth day thereafter (Register 86, No. 6).

## § 1593. Haulage Vehicle Operation.

(a) Vehicles shall not be operated at speeds which will endanger the driver or traffic.

(b) Haulage vehicles shall be under positive control during all periods of operation. When descending grades, the vehicles shall be kept in gear.

(c) When wire rope is being wound on a power–driven drum, a mechanical threading device shall be used, where practicable, to guide the cable. When this operation must be done manually, the feet shall not be used and the hands shall be kept at least 3 feet from the drum.

(d) All vehicles in use shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brake); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects affecting safe operation shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

(e) Exhaust Gases. Vehicle engines shall not be allowed to run in closed garages or other enclosed places, unless vents are provided which effectively remove the exhaust gases from the building.

(f) Securing Loads. Loads on vehicles shall be secured against displacement.

(g) Tire Repair. Except for emergency field repairs, a safety tire rack, cage, or equivalent protection shall be used when inflating truck or equipment tires after mounting on a rim, if such tires depend upon a locking ring or similar device to hold them on the rim.

(h) Parking Brakes. Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines shall have the wheels chocked and the parking brake set or be otherwise prevented from moving by effective mechanical means.

(i) Scissor points on all front–end loaders which constitute a hazard to the operator shall be adequately guarded.

(j) A loader shall not travel without adequate visibility for the driver and stability of the equipment.

(k) No loading device shall be left unattended until the load or bucket is lowered to the ground, unless proper precautions such as blocking are taken to prevent accidental lowering.

(*l*) All high lift trucks (e.g., fork lifts), industrial trucks, and rider trucks used on a construction site shall conform with the applicable orders in Article 25 of the General Industry Safety Orders and:

(1) If a load is lifted by two or more trucks working in unison, the proportion of the total load carried by any one truck shall not exceed its capacity.

(2) Steering or spinner knobs shall not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin. The steering knob shall be mounted within the periphery of the wheel.

(m) Loading buckets, scoops, blades or similar attachments on haulage vehicles which do not provide fall protection equivalent to that required by Section 3210 of the General Industry Safety Orders or Article 24 of the Construction Safety Orders (starting with Section 1669) shall not be used as work platforms or to elevate or transport employees except as provided by Section 1597 of these Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsection (i) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment of subsection (a), repealer of former subsection (c), relettering and amendment of former subsections (d) and (e) to subsections (c) and (d) and relettering of former subsections (f)–(i) to subsections (e)–(h) filed 2–7–86; effective thirtieth day thereafter (Register 86, No. 6).
3. New subsections (i)–(*l*) filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).
4. Amendment of subsection (d) and new subsection (m) filed 4–11–94; operative 5–11–94 (Register 94, No. 15).
5. Amendment of subsection (f) filed 6–28–2004; operative 7–28–2004 (Register 2004, No. 27).

## § 1594. Fueling.

(a) No internal combustion engine fuel tank shall be refilled with a flammable liquid while the engine is running. Fueling shall be done in such a manner that the likelihood of spillage is minimal. If a spill occurs it shall be washed away completely, evaporated, or equivalent action taken to control vapors before restarting the engine. Fuel tank caps shall be replaced before starting the engine.

(b) A good metal–to–metal contact shall be kept between fuel supply tank or nozzle of supply hose and the fuel tank.

(c) No open lights, welding, or sparking equipment shall be used near internal combustion equipment being fueled or near storage tanks.

(d) No smoking shall be permitted at or near the gasoline storage area or on equipment being fueled. Post a conspicuous sign in each fuel storage and fueling area stating: "*NO SMOKING WITHIN 25 FEET.*"

(e) Class I liquids shall not be dispensed by pressure from drums, barrels, and similar containers. Approved pumps taking suction through the top of the container or approved self–closing faucets shall be used.

(f) No repairs shall be made to equipment while it is being fueled.

(g) Each fuel storage tank or drum shall have the word "Flammable" conspicuously marked thereon and should also have a similarly sized word indicating the contents of the container.

(h) A dry chemical or carbon dioxide fire extinguisher rated 6:BC or larger shall be in a location accessible to the fueling area.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section title, and repealer and new subsection (a) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).

2. Amendment of subsections (e) and (h) filed 2-7-86; effective thirtieth day thereafter (Register 86, No. 6).

## § 1595. Repair of Haulage Vehicles, Tractors, Bulldozers and Similar Equipment.

(a) No repairs shall be attempted on power equipment until arrangements are made to eliminate possibility of injury, caused by sudden movements or operation of the equipment or its parts. When the equipment being repaired is a bulldozer, carryall, ripper, or other machine having sharp or heavy moving parts such as blades, beds, or gates, such parts shall be lowered to the ground or securely and positively blocked in an inoperative position.

All controls shall be in a neutral position, with the engine(s) stopped and brakes set, unless work being performed requires otherwise.

(b) Trucks with dump bodies shall be equipped with positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done. In all cases where the body is raised for any work, the locking device shall be used.

NOTE: Authority cited: Section 142.3, Labor Code: Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of subsections (b) through (f) filed 10-2-70; effective thirtieth day thereafter (Register 70, No. 40).
2. Amendment filed 5-21-75; effective thirtieth day thereafter (Register 75, No. 21).
3. Amendment filed 3-19-79; effective thirtieth day thereafter (Register 79, No.12).
4. Amendment of subsection (a) filed 2-7-86; effective thirtieth day thereafter (Register 86, No. 6).

## § 1596. Roll-Over Protective Structures (ROPS).

(a) Installation Schedule. ROPS and seat belts (see Section 1596(g)) shall be installed and used on all equipment specified in this section in accordance with the following effective dates for each type or use of equipment listed below:

NOTE: The provisions of this section do not apply to non-rider equipment.

(1) Scrapers, tractors, front-end loaders, bulldozers, motor graders and water wagon prime movers having brake horsepower ratings above 20:

| *Equipment Manufacture Dates* | *Effective Date for ROPS and Seat Belts* |
|---|---|
| (A) On or after April 1, 1971 | April 1, 1971 |
| (B) On or after July 1, 1969 and prior to April 1, 1971 | January 1, 1977 |
| (C) On or after January 1, 1960 and prior to July 1, 1969 | July 1, 1977 |
| (D) Prior to January 1, 1960 (If operated under any of the conditions specified in Section 1596(a)(2)(B), (i) or (ii) or (iii).) | July 1, 1977 |

EXCEPTIONS to Section 1596(a)(1):
(1) Side boom, pipe-laying tractors.
(2) An operator restraining system, acceptable to the Division, shall be permitted to be used in lieu of the required seat belts on motor graders not designed for seated operations.
(3) ROPS or seat belts shall not be required for the equipment identified in Section 1596(a)(1)(D) when loading/unloading from transportation vehicles on relatively flat surfaces.

(2) Rollers and compactors having a weight greater than 5,950 pounds.

(A) Rollers or compactors having segmented and/or sheepsfoot-type wheels or drums by July 1, 1977.

(B) All rollers and compactors (other than those specified in Section 1596(a)(2)(A)) when operating under any of the following conditions on or after July 1, 1977:

(i) Parallel to and within 3 feet of a down slope steeper than 3 feet horizontal to 1 foot vertical, or

(ii) Within 3 feet of a vertical or nearly vertical drop-off exceeding 1 foot in height, or

(iii) On any grade exceeding 15 percent (10 feet horizontal to 1 1/2 feet vertical).

EXCEPTIONS to Section 1596(a)(2)(B):
(1) Smooth, steel wheel rollers where the operator stands at the extreme rear of the vehicle.
(2) Rollers and compactors identified in Section 1596(a)(2)(B) when loading/unloading from transportation vehicles on relatively flat surfaces.

(b) ROPS Approval. ROPS shall be approved for their intended use as defined in Section 1505 of these Orders.

EXCEPTION: See Section 1596(i).

(c) Overhead Protection. ROPS shall provide operator protection against the hazard of falling objects.

(d) Retrofit Design Criteria. The following items comprise the basic design criteria for retrofit ROPS used on scrapers, tractors, front-end loaders, bulldozers, motor graders and water wagon prime movers manufactured prior to April 1, 1971, and for rollers and compactors manufactured prior to July 1, 1977:

(1) Designs shall be based on one of the following:

(A) SAE Recommended Practice J-1040-a, February, 1975, or

(B) Structural analysis calculations equivalent to SAE J-1040-a, or

(C) Capability to support at least 2 times the gross machine weight applied vertically subsequent to an independently applied side load not less than 1.25 times the gross machine weight applied horizontally at the top of ROPS.

NOTE: 1. Gross vehicle weight includes the ROPS, all fuels and other components required for normal use of the vehicle.

2. The structural characteristics of the vehicle frame must be included in the design of the ROPS system.

3. The mounting brackets shall be capable of withstanding vibration and the design loads applied to the ROPS.

(2) The inside dimensions of the ROPS shall meet the deflection limiting volume requirements of SAE J-397-a, July, 1973.

(3) The design of the ROPS shall be approved by a registered civil or mechanical engineer.

EXCEPTION: See Section 1596(i).

(e) Modification or Repair. ROPS required by Section 1596(a) may be modified or repaired providing such modification or repair complies with the provisions of Section 1596(d) or Federal OSHA standard 1926.1000(c)(2).

(f) Labeling. Each ROPS shall bear a label with the following information:

(1) Name and address of manufacturer.

(2) Manufacturer's ROPS model number.

(3) Make and model of equipment for which the ROPS is designed.

Labels shall be stamped plates or other permanently attached means of identification, and shall not be obscured, obliterated or changed.

(g) Seat Belts (i.e., lap belts) and Combination Pelvic/Upper Torso Restraint Systems. Seat belts shall be adequate for the intended service and in good repair. Belts previously approved by the Division and installed prior to January 1, 1971, are acceptable provided they remain serviceable. Belts installed on or after January 1, 1971, shall be labeled as meeting the requirements of the Society of Automotive Engineers (SAE) standard in effect at the time the belt was manufactured. Where installed, combination pelvic/upper torso (Type 2) restraint systems shall be labeled as meeting the requirements of SAE J2292 AUG97, Combination Pelvic/Upper Torso (Type 2) Operator Restraint Systems For Off-Road Work Machines.

NOTE: For the purpose of subsection (g), the term "upper torso restraint" means a portion of a seat belt assembly intended to restrain movement of the chest and shoulder regions.

(1) Adjustment. The seat belts shall be capable of snug adjustment by the employee by a means easily within the employee's reach or shall be provided with an automatic locking or emergency locking retractor.

(2) Marking. Each seat belt and combination pelvic/upper torso restraint system shall be permanently and legibly marked or labeled with year of manufacture, model or style number and name or trademark of manufacturer or distributor, or of the importer if manufactured outside of the United States.

(3) Stiffness. To minimize "roping," the seat belt webbing shall be woven and/or treated to produce a stiffness in the transverse direction equal to or greater than that obtained with a weave of double plain with

one up, one down binder,without stuffers. This stiffness shall be effective for the usable life of the webbing. The webbing shall be flexible in the longitudinal direction to permit adjustment to –40°F.

(4) Material. The seat belt webbing material shall have a resistance to acids, alkalis, mildew, aging, moisture and sunlight equal to or better than that of untreated polyester fiber. The webbing shall not be less than three (3) inches in width; its ends shall be protected or treated to prevent unravelling and the breaking strength shall be at least 6,000 pounds.

NOTE: For seat belt requirements for agricultural and industrial tractors, see Section 3653, General Industry Safety Orders.

(5) Release. The seat belt buckle shall be designed so that it can be easily released with a single motion. It shall also be capable of being released with either available mittened hand.

(6) Closure. The seat belt buckle shall be designed so that it can be easily closed with mittened hands.

(7) Location. When a two–piece belt is used, the adjustment means shall be on each half of the belt to allow for the centering of the buckle on the operator.

(8) Operation. Each adjustment shall be capable of being made with the use of one mittened hand.

(9) Tests. A typical complete seat belt assembly, including webbing, straps, buckles, adjustment and attachment hardware, and retractors, shall be capable of passing the following destructive tests:

(A) The assembly loop shall withstand, without failure, a force of not less than 5,000 pounds and each structural component of the assembly a force of not less than 2,500 pounds.

(B) The length of the assembly loop between anchorages shall not increase more than 14 inches and each half of the assembly loop shall not increase more than 7 inches when subjected to a force of 5,000 pounds.

(C) Any webbing cut by the hardware during testing shall have a breaking strength at the cut of not less than 4,200 pounds.

(h) Wheel–type Agricultural or Industrial Tractors.

(1) ROPS and seat belts shall be installed and used on all wheel–type agricultural or industrial tractors used in construction in accordance with the installation schedule in Section 1596(a)(1).

(2) The ROPS specified above shall be approved for their intended use as defined in Section 1505.

(3) Protective enclosures, if used, shall be approved for their intended use as defined in Section 1505.

(4) ROPS approvals granted for wheel–type agricultural or industrial tractors will remain effective for the specified models of equipment for which they were granted, unless revoked for cause. These ROPS shall bear a label with their California State Approval Number.

(i) Existing ROPS Approvals. ROPS and canopies installed prior to July 24, 1976 and having a label with a California approval number on the specific model of construction equipment for which the approval was granted shall be deemed to be in compliance with the provisions of this section relating to ROPS.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code

HISTORY

1. Amendment of subsections (a) and (d) filed 5–25–76 as an emergency; effective upon filing (Register 76, No. 22). For prior history, see Register 76, No. 6.
2. Repealer and new section filed 7–21–76; effective thirtieth day thereafter (Register 76, No. 30).
3. Amendment of subsections (b) and (d) and new subsection (i) filed 3–28–78; effective thirtieth day thereafter (Register 78, No. 13).
4. Amendment of subsections (a)(1) and (a)(2)(B) filed 5–6–81; effective thirtieth day thereafter (Register 81, No. 19).
5. Amendment filed 2–7–86; effective thirtieth day thereafter (Register 86, No. 6).
6. Amendment of subsections (g)–(g)(2) filed 3–4–98; operative 4–3–98 (Register 98, No. 10).
7. Amendment of subsections (b), (f)(4), (h)(2) and (h)(3) filed 5–17–99; operative 6–16–99 (Register 99, No. 21).

## Article 11. Vehicles, Traffic Control, Flaggers, Barricades, and Warning Signs

### § 1597. Jobsite Vehicles.

Jobsite vehicles as defined in Section 1504 of these Orders, which are utilized on jobsites exclusively and are, therefore, excluded from the provisions of applicable traffic and vehicular codes shall be equipped and operated in the following manner:

(a) Vehicles shall have a service brake system, an emergency brake system, and a parking brake system. These systems may use common components, and shall be maintained in operable condition.

(b) Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition.

(c) All vehicles, or combination of vehicles, shall have brake lights in operable condition regardless of light conditions.

(d) Vehicles with cabs shall have windshields and powered windshield wipers. Cracked or broken windshields shall be replaced promptly. Where fogging or frosting of windshields is prevalent, operable defogging or defrosting equipment shall be required.

(e) Tools and material shall be secured to prevent movement when transported in the same compartment with employees.

(f) Vehicles used to transport employees shall have seats firmly secured and adequate for the number of employees to be carried.

(g) Vehicles on construction sites, not covered by the provisions of 1596 (g) or applicable provisions of the State of California Motor Vehicle Code shall have installed seat belts and anchorages meeting the requirements of 49 CFR Part 571 (Department of Transportation, Federal Motor Vehicle Safety Standards).

(h) The employer shall require the use of seat belts.

(i) Vehicles excluded from provisions of 1591 and the State of California Motor Vehicle Code shall be equipped with fenders or, if vehicle is not designed for fenders, mud flaps.

(j) Vehicles not covered under other sections shall be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

(k) Where vehicles are operated, temporary covers for conduits, trenches and manholes and their supports, when located in roadways and vehicular aisles, shall be designed to carry at least 2 times the maximum intended vehicular live load and they shall be designed and installed as to prevent accidental displacement.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. New subsection (i) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
3. Editorial correction of subsection (g) (Register 82 No. 3).
4. Amendment of Article 11 Title and Section 1597 filed 9–10–85; effective thirtieth day thereafter (Register 85, No. 37).
5. Editorial correction of Article 11 Title filed 12–3–85; effective thirtieth day thereafter (Register 85, No. 49).
6. Amendment of subsection (d) filed 4–4–96; operative 5–4–96 (Register 96, No. 14).
7. Amendment of first paragraph filed 3–5–2008; operative 4–4–2008 (Register 2008, No. 10).

### § 1598. Traffic Control for Public Streets and Highways.

(a) Where a hazard exists to employees because of traffic or haulage conditions at work sites that encroach upon public streets or highways, a system of traffic controls in conformance with the "California Manual on Uniform Traffic Control Devices for Streets and Highways, September 26, 2006," which is herein incorporated by reference and referred to as the "Manual", published by the State Department of Transportation, shall be required so as to abate the hazard.

NOTE: Additional means of traffic control, such as continuous patrol, detours, barricades, or other techniques for the safety of employees may be employed.

(b) Specifications for the size and design of signs, lights, and devices used for traffic control shall be as described in the "Manual", pursuant to the provisions of California Vehicle Code Section 21400, which is incorporated by this reference.

(c) Employees (on foot) exposed to the hazard of vehicular traffic shall wear orange, strong yellow–green, or fluorescent versions of these colored warning garments such as vests, jackets, or shirts. During rainy weather, employees exposed to the hazard of vehicular traffic may wear orange, strong yellow–green, or yellow rainwear.

(d) During hours of darkness, warning garments shall be retroreflective. The retroreflective material shall be visible at a minimum of 1,000 feet. The retroreflective clothing, or the retroreflective material added to the clothing, shall have a minimum of one horizontal stripe around the torso. White outer garments with retroreflective material that meets the above requirements may be worn during hours of darkness in lieu of colored vests, jackets and/or shirts.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (e) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Repealer and new section filed 11–12–75; effective thirtieth day thereafter (Register 75, No. 46).
3. Amendment filed 9–6–83; effective thirtieth day thereafter (Register 83, No. 37).
4. Amendment of section including new subsection (d) filed 11–30–92; operative 12–30–92 (Register 92, No. 49).
5. Amendment of subsections (a), (c) and (d) filed 2–19–97; operative 3–21–97 (Register 97, No. 8).
6. Amendment of subsections (a) and (b) filed 12–29–2006; operative 1–28–2007 (Register 2006, No. 52).

### § 1599. Flaggers.

(a) Flaggers shall be utilized at locations on a construction site where barricades and warning signs cannot control the moving traffic.

(b) When flaggers are required, they shall be placed in relation to the equipment or operation so as to give effective warning.

(c) Placement of warning signs shall be according to the California Manual on Uniform Traffic Control Devices for Streets and Highways, September 26, 2006, published by the State Department of Transportation, which is herein incorporated by reference and referred to as the "Manual."

(d) Flaggers shall wear orange, strong yellow–green, or fluorescent versions of these colored warning garments such as vests, jackets, or shirts. Rainwear, when worn, shall be orange, strong yellow–green, or yellow.

(e) During the hours of darkness, flaggers' stations shall be illuminated such that the flagger will be clearly visible to approaching traffic and flaggers shall be outfitted with reflectorized garments. The retroreflective material shall be visible at a minimum distance of 1,000 feet. The retroreflective clothing, or the retroreflective material added to the clothing, shall have a minimum of one horizontal stripe around the torso. White outer garments with retroreflective material that meets the above requirements may be worn during hours of darkness in lieu of colored vests, jackets and/or shirts.

(f) Flaggers shall be trained in the proper fundamentals of flagging moving traffic before being assigned as flaggers. Signaling directions used by flaggers shall conform to the "Manual". The training and instructions shall be based on the "Manual" and work site conditions and also include the following:

(1) flagger equipment which must be used,

(2) layout of the work zone and flagging station,

(3) methods to signal traffic to stop, proceed or slow down,

(4) methods of one–way traffic control,

(5) trainee demonstration of proper flagging methodology and operations,

(6) emergency vehicles traveling through the work zone,

(7) handling emergency situations,

(8) methods of dealing with hostile drivers,

(9) flagging procedures when a single flagger is used (when applicable).

Documentation of the training shall be maintained as required by Section 3203, Injury Illness and Prevention Program of the General Industry Safety Orders.

(g) Flaggers shall be trained by persons with the qualifications and experience necessary to effectively instruct the employee in the proper fundamentals of flagging moving traffic.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11–12–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment filed 9–6–83; effective thirtieth day thereafter (Register 83, No. 37).
3. Amendment of subsections (c)–(f) filed 11–30–92; operative 12–30–92 (Register 92, No. 49).
4. Amendment of subsections (c), (d) and (e) filed 2–19–97; operative 3–21–97 (Register 97, No. 8).
5. Amendment of subsection (f) and new subsections (f)(1)–(g) filed 8–26–99; operative 9–25–99 (Register 99, No. 35).
6. Amendment of subsection (c) filed 12–29–2006; operative 1–28–2007 (Register 2006, No. 52).

## Article 12. Pile Driving

### § 1600. Pile Driving.

(a) A danger zone shall be clearly delineated around the operating hammer where employees involved in cutting, chipping or welding operations shall be prohibited so as to protect them from the hazards of falling objects.

(1) The employer shall establish the danger zone.

(2) The danger zone shall be maintained under the supervision of a competent person.

(b) A blocking device capable of safely supporting the weight of the hammer shall be provided for placement in the leads under the hammer and used at all times while employees are working under the hammer.

EXCEPTION: Where it is necessary for a worker, momentarily, to lean through the leads to spot a pile under hammer, it is not required that the hammer be secured in the leads.

(c) Steam and air hammer hose connections.

(1) All pile driver hose connections including those to pile driver hammers, pile ejectors, or jet pipes shall be securely tethered with an adequate length of at least 1/4 inch (0.635 cm) alloy steel chain having 3,250 pounds (1,500 kg) rated capacity (working load limit), or equivalent strength alloy steel cable to prevent the line from thrashing around in case the coupling becomes disconnected.

(2) Chains or wire rope shall not be shortened with knots, bolts or other makeshift devices.

(d) When used, platforms shall be of sufficient size so that the employee can easily avoid contact with the hammer. It shall be surrounded on all sides, except between the hammer leads, with a railing or guard line 42 to 45 inches in height. Guard lines shall be taut and at least 3/8 inch wire rope or equivalent. If railings are used, they shall be constructed in accordance with Section 1620.

EXCEPTION: Pipe or structural steel railings of equivalent strength may be used.

(e) Precautions shall be taken to ensure that objects are secured against wind and accidental displacement, to prevent tools, material, and equip-

ment from falling off elevated platforms. Toeboards shall be installed on all sides of the platform in accordance with Section 1621(b).

(f) Leads shall be provided with a ladder and adequate rings, or similar attachment points, so that the employee may engage a personal fall protection system to the leads. The personal fall protection system shall comply with the requirements of Article 24.

(g) Stirrups shall be provided for use on sheet piles or a mechanical device shall be used to guide the pile into place. If an employee is required to go aloft on sheet piling, the employee shall use an aerial device or ladder.

EXCEPTION: Where it is unsafe to use an aerial device or ladder, a boatswain's chair may be used in accordance with Section 1662.

(h) Employee(s) shall not ride the hammer.

(i) Where work is to be performed, walkways at least 20 inches in width shall be provided across piles or other open work with the exception of those piles on which the driver is standing.

(j) Where a drop hammer is used for driving piling other than sheet piling, a driving head or bonnet shall be provided to bell the head of the pile and hold it true in the leads.

(k) Ring buoys shall be provided in accordance with Article 13 and located where readily available at intervals not exceeding 200 feet on all structures over water under the course of construction.

Where employees are concentrated in groups, there shall be additional ring buoys consisting of not less than 1 additional buoy for each 25 employees in that area. Portable standards or equivalent means to hold the ring buoys in plain view shall be provided. Life saving boats shall be provided in accordance with Article 13.

(*l*) All floating rigs, with the exception of small work rafts or pontoons, shall be equipped with at least 2 ring buoys.

(m) In every crew there shall be a designated signaler, and the engine or winch operator shall receive signals from no other except, that when an employee is aloft, the hammer shall not be moved except on the signal of the employee aloft.

NOTE: For recommended standard hand signals, see Plate C–11.

(n) All deck engines, not operated by an operator on the throttle sides, shall be equipped with a cross extension of the throttle that is within the reach of the spool tender.

(o) Every hoisting drum used on a pile driver that uses a dog and ratchet arrangement to hold it in position shall be equipped with an adequate dog. This dog shall be readily visible from the engine operator's station or shall be provided with a directly connected and positive telltale device that will be visible.

(p) No arrangement of counterweights or springs on the dog shall be permitted which will allow the dog to be automatically disengaged either by relieving the load or rotating the drum.

(q) Stop blocks shall be provided for the leads to prevent the hammer from being raised against the head block.

(r) When the leads must be inclined in the driving of batter piles, provisions shall be made to stabilize the leads.

(s) Steam line controls shall consist of two shutoff valves, one of which shall be a quick–acting lever type within easy reach of the hammer operator.

(t) Guys, outriggers, thrustouts, or counter–balances shall be provided as necessary to maintain stability of pile driver rigs.

(u) All employees shall be kept clear when piling is being hoisted into the leads.

(v) When steel tube piles are being "blown out," employees shall be kept well beyond the range of falling materials.

(w) When driving jacked piles, all access pits shall be provided with ladders and bulkheaded curbs to prevent material from falling into the pit.

NOTE: Section 5158 of the General Industry Safety Orders prescribes the minimum standards for preventing employee exposure to dangerous air contamination and/or oxygen deficiency in confined spaces.

(x) Hoisting of piling shall be done by hooks provided with a means to prevent accidental disengagement or a shackle shall be used in place of a hook.

(y) Taglines shall be used for controlling unguided piles and free hanging (flying) hammers.

(z) Hammers shall be lowered to the bottom of the leads while the pile driver is being moved.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsections (q)–(w) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment filed 9–9–85; effective thirtieth day thereafter (Register 85, No. 37).
3. Amendment of subsection (f) filed 7–30–97; operative 8–29–97 (Register 97, No. 31).
4. Amendment filed 5–24–2004; operative 6–23–2004 (Register 2004, No. 22).

### § 1601. Methods of Unloading Piles.

Piles shall be unloaded in a controlled manner so that employees are not exposed to the hazard of rolling or falling piles.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 9–9–85; effective thirtieth day thereafter (Register 85, No. 37).
2. Repealer and new section filed 5–24–2004; operative 6–23–2004 (Register 2004, No. 22).

## Article 13. Work Over or Near Water

### § 1602. Work Over or Near Water.

(a) The following safety devices shall be provided for and used by employees at those locations where the danger of drowning exists:

EXCEPTION: Where employees are continuously protected by railings, nets, safety belts or other applicable provisions of these Orders.

(1) Personal Flotation Devices (PFD). Employees shall be required to wear U. S. Coast Guard approved personal flotation devices that are marked or labeled Type I PFD, Type II PFD, or Type III PFD, or a U.S. Coast Guard approved Type V PFD that is marked or labeled for use as a work vest for commercial use or for use on vessels.

(2) Ring Buoys. U. S. Coast Guard approved 30–inch ring buoys with at least 150 feet of 600 pound capacity line shall be readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet.

(3) Lifesaving Boats. One or more lifesaving boats, either manually or power–operated, shall be provided and readily accessible at all times. Lifesaving boats shall be properly maintained, ready for emergency use and equipped with oars and oarlocks attached to the gunwales, boathook, anchor, ring buoy with 50 feet of 600 pound capacity line and two life preservers in accordance with Section 1602(a)(1) and (2). Oars are not required on boats that are powered by an inboard motor.

(A) Where, because of swift current, lifeboats cannot be used, a line shall be stretched across the stream with tag lines or floating planks trailing in the water at intervals not to exceed 6 feet. If this is impracticable, some other arrangement for providing effective life lines near the water surface shall be provided.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering of subsections (a)–(c) to (d)–(h) and new subsections (a)–(c) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Repealer of Article 13 (Section 1602) and new Article 13 (Sections 1602–1603) filed 5–3–78; effective thirtieth day thereafter (Register 78, No. 18).
3. Amendment of subsection (a)(3) filed 9–9–85; effective thirtieth day thereafter (Register 85, No. 37).
4. Amendment of subsection (a)(1) filed 12–8–2004; operative 1–7–2005 (Register 2004, No. 50).

### § 1603. Walkways.

(a) When dredge discharge pipe lines are used as walkways, they shall be provided with a flat surface walkway at least 12 inches wide, anchored to the pipe line to prevent displacement. A railing providing at least a

single rail or taut rope 42 to 45 inches high shall be provided along one side. When rope is used, it shall be at least as strong as 3/4–inch diameter Manila or at least 3/8–inch diameter wire rope, or equivalent.

(b) Catwalks or platforms shall be at least 20 inches wide with railings provided at all locations over bodies of water more than 4 feet deep. Plank for such use at those locations subject to immersion shall be rough sawn and treated to resist rot. Railings shall be installed in accordance with the provisions of Section 1620.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 9–9–85; effective thirtieth day thereafter (Register 85, No. 37).

## Article 14. Construction Hoists

### § 1604. Personnel Hoists.

Sections 1604.1 through 1604.30 are taken, with revisions necessary to conform to State codification numbering requirements and existing laws, from ANSI 10.4–1973 American National Standard Safety Requirements for Personnel Hoists.

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. Repealer of Article 14 (Sections 1604–1607) and new Article 14 (Sections 1604, 1604.1–1604.30, 1605, 1605.1–1605.21) filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46). For prior history, see Register 70, No. 48.

### § 1604.1. General.

(a) Scope.

(1) These Safety Orders apply to the design, construction, installation, operation, inspection, testing, maintenance, alterations, and repair of structures and hoists which are installed inside or outside buildings during construction, alteration, or demolition, and are used to raise and lower workers and other persons connected with, or related to, the building project. The hoist may also be used for transportation of materials.

(2) These Safety Orders shall not apply to hoists for raising and lowering materials with no provision for carrying personnel nor to mine hoists.

(3) Endless belt–type manlifts are prohibited for use as personnel hoists.

(4) Non–guided or wire–rope guided hoists are prohibited.

EXCEPTION: Wire–rope guided personnel hoists may be used in chimney and stack construction provided the hoist is designed by a civil or mechanical engineer registered in California; the hoist is erected under the supervision of a qualified engineer; the engineering design and calculations have been approved by the Division of Industrial Safety; and, a valid operating permit has been issued by the Division prior to use of the hoist.

(b) Purpose.

The purpose of this Standard is to provide safety requirements for life, limb, and property for those engaged in occupations requiring the use of personnel hoists. The requirements of this Standard are minimum for that purpose.

(c) Engineering Supervision.

(1) The employer shall comply with the manufacturer's specifications and limitations applicable to the operation of all hoists and elevators. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a professional engineer competent in the field.

(2) Personnel hoists used in bridge tower construction shall be approved by a registered professional engineer and erected under the supervision of a qualified engineer competent in this field.

HISTORY

1. Amendment of subsection (a)(4) filed 3–30–76 as an emergency; effective upon filing (Register 76, No. 14).
2. Amendment of subsection (a)(4) filed 7–30–76 as an emergency; effective upon filing (Register 76, No. 31).
3. Certificate of Compliance filed 8–13–76 (Register 76, No. 33).

### § 1604.2. Related Standards.

(a) These Personnel Hoist Safety Orders are supplemented by the following:

(1) The General Industry Safety Orders requirements for floor and wall openings, railings and toeboards.

(2) The Elevator Safety Orders.

(3) American National Standard Building Code Requirements for Reinforced Concrete, A89.1–1972 (ACI 318–71).

(4) The Electrical Safety Orders.

(5) American Welding Society, Structural Welding Code Z49.1–1973.

(6) American Institute of Steel Construction, Specification for the Design, Fabrication and Erection of Structural Steel for Buildings, 1969.

(7) American Gear Manufacturers Association Standards AGMA 210.02, AGMA 220.02 and AGMA 240.01.

### § 1604.3. Definitions.

HISTORY

1. Change without regulatory effect repealing section filed 10–28–97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 44).

### § 1604.4. Temporary Use of Permanent Elevators for Carrying Workers or Materials.

(a) Permanent passenger or freight elevators installed in buildings under construction, modification, or demolition may be used as construction hoists when they have been arranged to meet the requirements of this Article.

(b) Permanent passenger or freight elevators may be used on construction sites on automatic operation after a permit to operate has been issued by the Division.

### § 1604.5. Construction of Towers, Masts, and Hoistway Enclosures.

(a) Tower or Mast Construction.

The tower or mast construction forming the supports for the machinery and guide members shall be designed and installed to support the load and forces specified.

(b) Protection of Spaces Below Hoistways.

Where the space below the hoistway is used for a passageway or is occupied by persons or, if unoccupied, is not secured against unauthorized access, the following requirements shall be met:

(1) Hoist counterweights shall be provided with a Type "A" or "B," or rack and pinion safety. Broken–rope type safeties may be provided on car counterweights.

EXCEPTION: Where it can be demonstrated by recognized engineering calculations, submitted in writing by a qualified engineer, that the structure over the passageway, vault, or other usable space is capable of withstanding the impact of the counterweights falling their maximum distance, no safety device need be provided.

(2) The cars and counterweights shall be provided with spring or oil buffers conforming to the following:

(A) Spring or oil buffers shall conform with Section 1604.14.

(B) Spring buffers for hoists shall be so designed and installed that they will not be fully compressed when struck by the car with its rated load and by the counterweight at governor–tripping speed where the safety is governor–operated and at 125% of rated speed where the safety is not governor–operated.

(3) Car and counterweight buffer supports shall be of sufficient strength to withstand without permanent deformation the impact resulting from buffer engagement at governor–tripping speed where the safety is governor–operated and at 125% of rated speed where the safety is not governor–operated.

(c) Hoistway Enclosures.

(1) Hoists Located Outside of Structures.

For hoists located outside of structures, the enclosures, except those at the lowest landing, may be omitted on the sides where there is no floor or scaffold adjacent to the hoistway. Enclosures on the building side of the hoistway shall be full height or a minimum of 8 feet at each floor landing. Enclosure at the pit shall be not less than 8 feet on all sides.

(2) Hoists Located Inside of Structures.

For hoists located inside of structures, the hoistway shall be enclosed throughout its height.

(3) Design.

Hoistway enclosures shall be so supported and braced that when subjected to a pressure of 100 pounds applied horizontally at any point, the deflection shall not exceed 1 inch and shall not reduce the running clearance below the minimum required in Section 1604.11(a).

Hoistway enclosures, if of openwork, shall be provided on all sides within the building or structure with an unperforated kickplate extending not less than 12 inches above the level of each floor above the lowest.

(d) Hoist Structure.

(1) Hoists shall be supported by a firm foundation of such dimensions as to adequately distribute the transmitted load so as not to exceed the safe load bearing capacity of the ground upon which such hoists are erected.

(2) Each hoist structure shall be anchored to the building or other structure at vertical intervals not exceeding 30 feet. Where the building or other structure is of such character that tie–ins cannot be made, the hoist structure shall be guyed by means of a suitable number of guys. Such guys shall be fastened to adequate anchorages to ensure hoist structure stability. When wire rope is used for guys, the rope shall be at least 1/2–inch in diameter.

(3) Tie–ins shall conform to, or be equal to, the manufacturer's specifications and shall remain in place until the tower or mast is dismantled.

(4) The free–standing portion of the hoist structure shall be in accordance with manufacturer's specifications.

(5) Cars in multiple hoistways are prohibited when one or more cars are designed according to the requirements of Section 1605.9 for material hoists.

(6) Each personnel hoist shall be independently powered and operated.

(7) Booms shall be prohibited on hoists and structures.

EXCEPTION: Booms used to erect rack and pinion towers.

(e) Erection and Dismantling.

Personnel and building materials connected with, or related to, the building project may not be moved by the hoist while erection, dismantling or inspection of the hoist are taking place.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (c)(3) and new NOTE filed 1–28–2003; operative 2–27–2003 (Register 2003, No. 5).

## § 1604.6. Hoistway Doors and Door Locking Devices.

(a) Height, Material, and Installation.

(1) Hoistway doors shall be not less than 6 feet 6 inches high.

(2) Hoistway doors and gates including their components, such as guides, guide shoes, tracks, locking devices, hangers, hinges, etc., shall be so designed, constructed, installed and maintained that the fully closed door or gate shall not deflect beyond the centerline of the car–to–landing sill clearance when subjected to a force of 75 pounds applied perpendicular to the door or gate and distributed over an area of 1 square foot on any part of the door or gate, including the components.

(3) When subjected to a force of 250 pounds applied as described in subsection (a)(2), doors or gates and their components shall not be displaced from their supports, guides, tracks, hinges, latches and locking devices, or be permanently deformed or otherwise made inoperative.

(4) Where multi–section doors or gates are used, each panel shall withstand the forces specified in subsections (a)(2) and (a)(3).

(5) Solid doors, where used, shall be provided with a vision–panel or panels having an opening width of not more than 6 inches, and an area not more than 80 square inches per panel covered with expanded metal or wire mesh which shall reject a 3/4–inch ball or clear material having equivalent strength. The vision panel shall withstand a force of 75 pounds applied perpendicularly to any part of the panel and distributed over an area of 1 square foot with no greater deflection than any other part of the door as allowed in subsection (a)(2).

(b) Door Locking Devices.

Landing doors shall be provided with a means that will lock the doors mechanically so that they cannot be opened from the landing side.

These locks shall, at the landings other than the lowest landing, be of a type that can be released only by a person in the car.

If the door at the lowest terminal landing is locked automatically when closed with the car at the landing, it shall be provided with means to unlock it from the landing side to permit access to the car. The means provided shall be accessible only to authorized persons. A hook and eye shall be prohibited as a door locking device.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (a), new subsections (a)(1)–(5) and new NOTE filed 1–28–2003; operative 2–27–2003 (Register 2003, No. 5).

## § 1604.7. Overhead Beams, Foundations, and Flooring Over Hoistway.

(a) Overhead Beams and Foundations.

Overhead beams and foundations for the direct support of the machinery or sheaves, or both, shall conform to the following requirements:

(1) Beams and Supports Required.

Machines, machinery, and sheaves shall be so supported and maintained in place as to effectually prevent any part from becoming loose or displaced under the conditions imposed in service.

Supporting beams, if used, shall be of steel or reinforced concrete. Beams are not required under machines, sheaves, and machinery or control equipment which are supported on floors, provided such floors are designed and installed to support the load imposed thereon.

(2) Overhead Beams, Floors, and Their Supports.

Overhead beams, floors, and their supports shall be designed for not less than the sum of the following loads:

(A) The load resting on the beams and supports which shall include the complete weight of the machine, sheaves, controller, governor, and any other equipment, together with that portion, if any, of the machine room floor supported thereon.

(B) Twice the sum of the tensions in all wire ropes supporting the car, passing over sheaves or drums supported by the beams, with rated load in the car.

(3) Foundations, Beams, and Floors for Machinery and Sheaves Not Located Directly Over the Hoistway.

For machines and sheaves located below, or at the sides of, the hoistway, the foundation for the machine and sheave beams and their supports shall be designed to withstand loads as follows:

(A) The foundation shall support the total weight of the machine, sheaves, and other equipment, and the floor, if any.

(B) The sheave beams and the foundation bolts shall withstand twice the vertical component of the tensions in all hoisting ropes passing over sheaves or drums on the foundation or beams, less the weight of the machine or sheaves.

(C) The sheave beams and the foundation bolts shall withstand twice the horizontal component, if any, of the tensions in all hoisting ropes passing over sheaves or drums on the foundation or beams.

(D) The foundation shall withstand twice the overturning moment, if any, developed by the tensions in all the hoisting ropes passing over sheaves or drums on the foundation or beams.

(4) Securing of Machinery and Equipment to Beams, Foundations, or Floors.

(A) Overhead Beams and Floors.

Machinery or equipment shall be secured to, and supported on or from the top of, overhead beams or floors.

EXCEPTIONS:

1. Secondary or deflecting sheaves of traction hoists.
2. Devices and their accessories for limiting or retarding car speed.

(B) Beams or Foundations Supporting Machinery and Sheaves Not Located Directly Over the Hoistway.

Machines and sheaves located below, or at one side of, a hoistway shall be anchored to beams, foundations, or floors with bolts, shall conform to American National Standard Specification for Low–Carbon

Steel Externally and Internally Threaded Standard Fasteners, G38.5–1969 (ASTM A307–68), and shall be of sufficient size and number to withstand the applicable load conditions specified under Section 1604.7(a)(2). Based on these initial loads, total tension in anchor bolts shall not exceed 12,00 lb./in.$^2$ of net section, and the total shear shall not exceed 8,600 lb./in.$^2$ of actual area in the shear plane. Where bolts are used through sloping flanges of structural shapes, the bolt heads shall be of the tipped or beveled–head type or shall be fitted with beveled steel washers, and nuts on sloping flanges shall seat on beveled steel washers.

EXCEPTION: Bolts made of steel having a greater strength than that specified by American National Standard G38.5–1969 (ASTM A307–68) may be used and the maximum allowable stresses increased proportionally based on the ratio of the ultimate strengths. Elongation must conform to the requirements of the corresponding American National Standard.

(C) Overhead Hoisting Rope Hitches.

Where hoisting ropes are secured to the structure above a hoistway, the hitch plates and hitch plate blocking beams, where used, shall be secured to, and mounted on top of, overhead beams, machine beams, or on top of auxiliary beams connected to the webs of overhead beams. Hitch plates, blocking beams or auxiliary beams shall be secured by bolting, riveting, or welding, and shall be so located that the tension in the hoisting ropes will not develop direct tensions in the bolts or rivets. Bolts shall conform to American National Standard G38.5–1969 (ASTM A307.68), American National Standard Specification for High Strength Bolts and Structural Steel Joints, Including Suitable Nuts and Plain Hardened Washers.

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G38.6–1972 (ASTM A325–71a), or American National Standard Specifications for Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints, G24.19–1972 (ASTM A490–71). Rivets shall conform to American National Standard Specification for Steel Structural Rivets, G42.2–1968 (ASTM A502–65). Welding shall conform to American Welding Society, Structural Welding Code D1.1. Where bolts and rivets are subject to shearing stresses due to tensions in the hoist ropes, the total shear shall not exceed 8,600 lb./in.$^2$ of actual area in the shear plane. Except where friction–type connections are used in accordance with American National Standard G38.6–1972 (ASTM A325–71a) and American National Standard G24.19–1972 (ASTM A490–71), the allowable stresses per Section 1604.7(a)(5)(A) shall be used.

The stresses in welds due to tensions in the hoisting ropes shall not exceed 12,000 lb./in.$^2$ based on the throat area of the weld.

The hitch plate supporting beams shall be designed to withstand twice the sum of the tension in all hoisting ropes attached to the hitch plates.

Total stresses in tension plus bending in hitch plates and hitch plate shapes shall not exceed 12,000 lb./in.$^2$

EXCEPTION: Bolts made of steel having a greater strength than specified by American National Standard G38.5–1969 (ASTM A307–68) may be used and the maximum allowable stresses increased proportionally based on the ratio of the ultimate strengths. Elongation must conform to the requirements of the corresponding American National Standard.

(D) Cast Metals in Tension or Bending.

Cast metals having an elongation of less than 20% in a length of 2 inches, which are subject to tension or bending, shall not be used to support machinery or equipment from the underside of overhead beams or floors.

(5) Allowable Stresses for Machinery and Sheave Beams, or Floors and Their Supports.

The unit stresses for all machinery and sheave beams, and floors and their supports, based on the loads computed as specified under Section 1604.7(a)(2), shall not exceed 80 percent and the unit stresses in tower or mast structures shall not exceed one hundred percent of those permitted for static loads by the following standards:

(A) Structural Steel.

AISC Specification for the Design, Fabrication and Erection of Structural Steel for Building.

(B) Reinforced Concrete.

Building Code Requirements for Reinforced Concrete ANSI A89.1 (ACI 318).

Where stresses due to loads other than hoist loads, supported on the beams or floor, exceed those due to the hoist loads, 100 percent of the permitted stresses may be used.

(b) Flooring Over Hoistway.

Where the hoisting machine is installed at the top of the hoistway, a solid floor shall be provided for maintenance, inspection, and lubrication. The floor shall be of 2–inch plank, or the equivalent, secured against movement with guardrails installed on all open sides. Where the hoisting machine is located at the bottom of the hoistway suitable access shall be provided for maintenance, inspection, and lubrication of top cathead and sheaves.

### § 1604.8. Electrical Wiring, Fittings, and Fixtures.

(a) Wiring, Raceways, and Cables in Hoistways and Machine Rooms.

Main feeders for supplying power to the hoist may be installed inside or outside the hoistway.

(1) Only such electrical wiring, raceways, and cables used directly in connection with the hoist may be installed inside the hoistway.

(A) All conduits, armored cables, electrical metallic tubing, metal wireways, flexible conduits, and cabled conductors located within hoistways shall be securely fastened to the hoistway construction or to the guide member(s), or to the guide member supports.

(2) The installation of all electrical wiring in hoistways and machine rooms, except as may be provided elsewhere in this Standard, shall conform to the requirements of the Electrical Safety Orders.

Traveling cables, where used between the car and hoistway wiring, shall be Type E.O., E.T.T., S.O., or a type approved by an accepted testing laboratory.

(b) Enclosure of Live Parts on Cars and in Hoistway.

All live parts of electrical apparatus, located in or on hoist cars or in their hoistways, shall be suitably enclosed to protect against accidental contact.

The maximum circuit voltage of control or operating circuits permitted in or on hoist cars and their hoistways shall not exceed that specified in Section 1604.24(c)(1).

(c) Fittings, Fixtures, and Switches.

Where the hoistway is exposed to the weather, as in open shafts outside the structure; the electrical wiring, fittings, fixtures, and switches shall be weatherproof.

Slack rope switches, where required, lower normal–terminal and lower final–terminal hoistway limit switches, slowdown switches, and pit stop switches shall be located as far above the bottom of the pit as practicable.

### § 1604.9. Protection of, and Access to, Machinery and Control Equipment, and Lighting of Machinery Spaces.

(a) Access shall be provided to the machinery and control spaces to permit proper lubrication and maintenance of the equipment.

(b) Machinery and control equipment shall be protected from the weather and from access by unauthorized persons.

(c) Spaces containing driving machines and control equipment shall be provided with adequate lighting.

### § 1604.10. Bottom and Top Clearances and Runbys for Cars and Counterweights.

(a) Bottom Car Clearances.

When the car rests on its fully compressed buffer, there shall be a vertical clearance of not less than 2 feet between the pit area (ground or foundation) and the lowest structural or mechanical part, equipment, or device installed beneath the car platform except guide shoes or rollers, safety–jaw assemblies, and platform aprons, guards, or other equipment located within 12 inches horizontally from the sides of the car platform (See Figure 1).

When the car rests on its fully compressed buffer, no part of the car or any equipment attached thereto shall strike any part of the pit or any part of the equipment located therein.

(1) The bottom clearance should be determined as shown in Figure 1 and should be not less than the following:

(A) Where no equipment under the car platform, except as noted in Figure 1, projects below the bottom of the car frame plank channel, c = 2′ 0″.

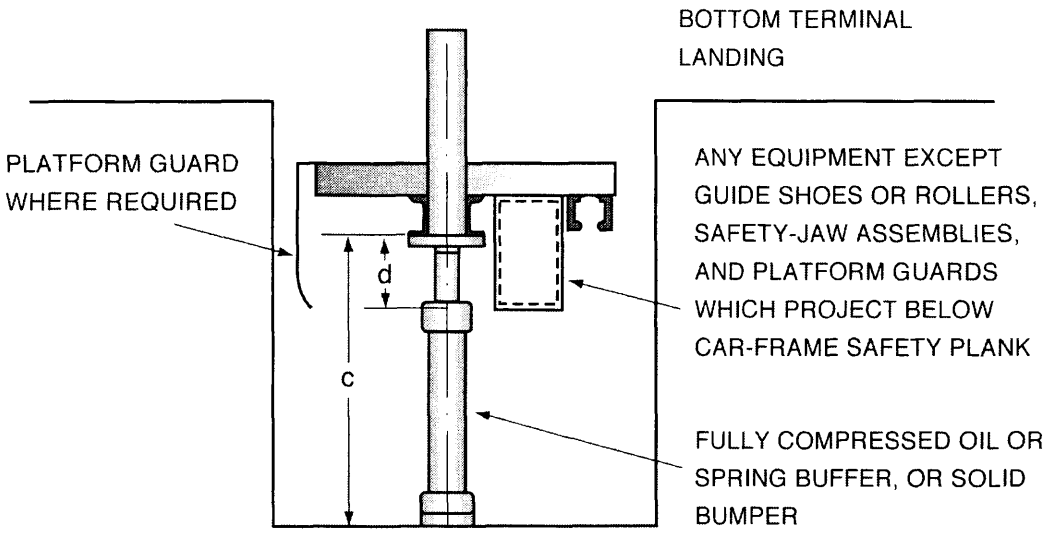



Figure 1 — Bottom Car Clearance

(B) Where any equipment under the car platform, except as noted in Figure 1, projects a distance, d, below the bottom of the car frame plank channel, c = d + 2′ 0″.

(b) Bottom Runby for Counterweighted Hoists.

The bottom runby of cars and counterweights shall be not less than 6 inches.

EXCEPTION: Where spring return–type oil buffers are used, the runby may be eliminated so that the buffers are compressed by not more than 25% of their stroke when the car floor is level with the terminal landings.

(1) Where spring buffers are used, a minimum of 6 inches shall be required where generator field control is used; where rheostatic control is used, not less than the following minimum runbys shall apply:

| *Rated Speed (feet per minute)* | *Runby (inches)* |
|---|---|
| 51 to 200 | 9 |
| 201 to 600 | 12 |

(c) Bottom Runby for Uncounterweighted Hoists.

The bottom runby of uncounterweighted elevators shall be not less than 6 inches.

(d) Maximum Bottom Runby for Permanent Elevators Used as Hoists.

(1) Twenty–four inches for cars.

(2) Thirty–six inches for counterweights.

(e) Top Car Clearances for Counterweighted Hoists.

The top car clearance shall be not less than the sum of the following:

(1) The bottom counterweight runby.

(2) The stroke of the counterweight buffer used.

(3) Two feet or the distance which any sheave or any other equipment mounted in or on the car crosshead projects above the top of the car crosshead, whichever is greater.

(4) Where an oil buffer is used for the counterweight and no provision is made to prevent the jump of the car at counterweight buffer engagement, add one–half the gravity stopping distance based on 115% of rated speed, or one–half the counterweight buffer stroke if a reduced stroke buffer conforming to Section 1604.14(c) is used. Where counterweight spring buffers are used, add one–half the gravity stopping distance based on governor–tripping speed.

(f) Top Car Clearance for Uncounterweighted Hoists.

The top car clearance shall be not less than 2 feet 6 inches.

(g) Top Counterweight Clearances.

The top counterweight clearance shall be not less than the sum of the following:

(1) The bottom car runby.

(2) The stroke of the car buffer used.

(3) Six inches.

(4) Where an oil buffer is used for the car and no provision is made to prevent the jump of the counterweight at car buffer engagement, add one–half the gravity stopping distance based on 115% of rated speed, or one–half the car buffer stroke if a reduced stroke buffer conforming to Section 1604.14(c) is used.

Where car spring buffers are used, add one–half the gravity stopping distance based on governor–tripping speed.

(h) Overhead Clearances Where Overhead Beams Are Not Over Car Crosshead.

Where overhead beams or other overhead hoistway construction except sheaves are located vertically over the car, but not over the crosshead, the clearance from the car top to such beams or construction, when the car is level with the top landing, shall be not less than the amount specified in Sections 1604.10(e) and 1604.10(f).

(i) Equipment on Top of Car Striking Overhead Structure.

When the car crosshead, or car top where no crosshead is provided, is at a distance of 2 feet from the nearest obstruction above it, no equipment on top of the car shall strike any part of the overhead structure or the equipment located in the hoistway.

(j) Gravity Stopping Distances.

The following formula gives the value of the stopping distance based on gravity retardation from any initial velocity:

$$S = \frac{(V)^2}{19{,}320}$$

where

V = initial velocity, in feet per minute

S = free fall, in inches (gravity stopping distance)

Figure 2 shows the gravity stopping distances from various initial velocities.

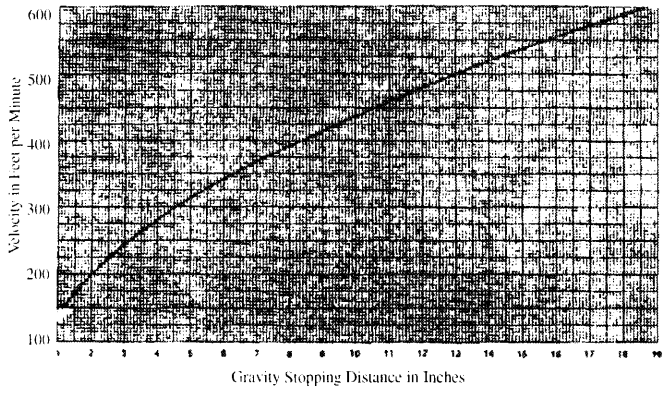



Fig. 2
Gravity Stopping Distance

HISTORY

1. Change without regulatory effect repealing and adopting new Figure 1 within subsection (a)(1)(A) filed 5-19-2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 21).

### § 1604.11. Horizontal Car and Counterweight Clearances.

(a) Clearance Between Car and Hoistway Enclosures.

The clearance between the car and the hoistway enclosure shall be not less than 3/4–inch except on the sides used for loading and unloading.

(b) Clearance Between Car and Counterweight and Counterweight Screen.

The clearance between the car and counterweight shall be not less than 1 inch. The clearance between counterweight and the counterweight screen, and between the counterweight and the hoistway enclosure, shall be not less than 3/4–inch.

(c) Clearance Between Cars and Landing Sills.

The clearance between the car platform sill and the hoistway edge of any landing sill, or the hoistway side of any vertically sliding counterweighted hoistway door or of any vertically sliding counterweighted hoistway door or of any vertically sliding counterbalanced biparting hoistway door, shall be not less than 1/2–inch where side guides are used and not less then 3/4–inch where corner guides are used. The maximum clearance shall be not more than 1 1/2–inches.

(d) Clearance Between Car Platform Sills and Hoistway Enclosures.

The clearance between the edge of the car platform and the hoistway enclosure at each landing for the full width of the clear car gate opening shall be not more than 8 inches.

(e) Measurement of Clearances.

The clearances specified in this Section shall be measured with no load on the car platform.

### § 1604.12. Location and Guarding of Counterweights.

(a) Location of Counterweights.

Counterweights shall be located either in or on the hoist structure which they serve.

(b) Counterweight Pit Guards.

(1) Design, Construction, and Location of Guards.

Guards shall extend from a point not more than 12 inches above the pit floor to a point not less than 6 feet or more than 8 feet above such floor, and shall be fastened to a metal frame properly reinforced and braced to be at least equal in strength and stiffness to No. 14 U.S. Gage Sheet Steel.

(c) Enclosure of Counterweight by the Hoisting Enclosure.

(1) Hoists Located Outside of Structure.

For hoists located outside of structures, the enclosures, except those at the lowest landing, may be omitted on the sides where there is no floor or scaffold adjacent to the counterweight way. Enclosures on the building side of the counterweight way shall be full height or a minimum of 8 feet

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at each floor landing. Other enclosures, where required, shall not be less than 8 feet high.

(2) Hoists Located Inside of Structure.

For hoists located inside of structures, the counterweight way shall be enclosed its full height.

(d) Pit Access. All doors, gates, or other entryways into the counterweight pit area shall be locked so as to prevent access by unauthorized personnel.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3, Labor Code.

HISTORY

1. New subsection (d) filed 12-13-90; operative 1-12-91 (Register 91, No. 3).

### § 1604.13. Car and Counterweight Guide Members, Guide Member Supports, and Fastenings.

(a) Requirement for Guide Members.

Personnel hoists shall be provided with car and counterweight guide members.

(b) Material.

Guide member(s), guide member brackets, rail clips, fishplates, and their fastenings shall be of steel or other metals conforming to the requirements as follows:

(1) Members, Brackets, Fishplates, and Rail Clips.

Members, brackets, fishplates, and rail clips shall be made of open hearth steel, or its equivalent, having a tensile strength of not less than 55,000 lb./in.$^2$ and having an elongation of not less than 22% in a length of 2 inches.

(2) Bolts.

Bolts shall conform to American National Standard Specification for Low Carbon Steel Externally and Internally Threaded Standard Fasteners, G38.5-1969 (ASTM A307-68), American National Standard Specification for High Strength Bolts for Structural Steel Joints, Including Suitable Nuts and Plain Hardened Washers, G38.6-1972 (ASTM A325-71a), or American National Standard Specification for Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints, G24.19-1972 (ASTM A490-71).

(3) Rivets.

Rivets shall conform to American National Standard Specification for Steel Structural Rivets, G42.2-1968 (ASTM A502-65).

(4) Requirements for Metals Other Than Steel.

Metals other than steel may be used provided the factor of safety is not less than, and the deflections not more than, the values specified in Section 1604.13(b), and provided that cast iron is not used.

(c) Stresses and Deflections.

(1) Guide Members.

The stresses in a guide member, or in the member and its reinforcement, due to the horizontal forces imposed on the member during loading, unloading, or running, calculated without impact, shall not exceed 15,000 lb./in.$^2$ based upon the class of loading, and the deflection shall not exceed 1/4-inch.

EXCEPTION: Where steels of greater strength than those specified under Section 1604.13(b) are used, the stresses specified may be increased proportionately based on the ratio of the ultimate strengths.

(2) Fastenings and Supports.

The guide member fastenings and supports shall be capable of resisting the horizontal forces imposed by the loading with a total deflection at the point of support not in excess of 1/8-inch.

(d) Overall Length of Guide Members.

The top and bottom ends of each run of guide member shall be so located in relation to the extreme positions of travel of the car and counterweight that the car and counterweight guide shoes or rollers cannot travel beyond the ends of the guide members.

(e) Guide Member Fastenings and Supports.

(1) Design and Strength of Fastenings and Supports.

The supports of the guide members, and the guide member fastenings, shall be of such design as to safely withstand the application of the car or counterweight safety when stopping the car and its rated load or the counterweight, and withstand the forces specified in Section 1604.13(c) within the deflection limits specified.

(2) Fastenings.

Guide member fastenings, when used, shall be secured to their supporting structure by means of structural bolts, clips, rivets, or by welding. Fastening bolts and bolt holes in fastenings and their supporting beams shall conform to the requirements of Section 1604.13(f). Welding shall conform to the requirements of American Welding Society Code D1.1.

(f) Type of Fastenings.

Guide members shall be secured by clips, rivets, bolts, or welds.

Bolts used for fastening shall be of such strength as to withstand the forces specified under Section 1604.13(c).

Welding, where used, shall conform to the requirements of American National Standard Z49.1-1973.

### § 1604.14. Car and Counterweight Buffers.

(a) Type and Location.

(1) Spring or Oil Buffers.

Buffers of the spring or oil type shall be installed under the cars and counterweights of personnel hoists.

NOTE: Section 1604.5(b)(1) requires buffers under all cars and counterweights in hoistways which are above accessible spaces.

Spring buffers or their equivalent may be used where the rated speed is not in excess of 300 feet per minute.

EXCEPTION: For rated speeds of 301 to 600 feet per minute, spring buffers having a stroke of not less than 12 inches may be used provided a terminal speed limiting device conforming to the requirements given under Section 1604.23(d) is provided.

(2) Location.

Buffers shall be located symmetrically with reference to the vertical center line of the car frame or the counterweight frame within a tolerance of 2 inches.

(b) Construction and Requirements for Spring Buffers.

(1) Buffer Stroke.

The stroke of the buffer spring, as marked on its marking plate, shall be equal to, or greater than, the following:

| *Rated Car Speed (feet per minute)* | *Stroke (inches)* |
|---|---|
| 100 or less | 1 1/2 |
| 101 to 150 | 2 1/2 |
| 151 to 200 | 4 |
| 201 to 250 | 6 |
| 251 to 300 | 9 |

(2) Buffers for Cars and Counterweights.

Buffers for cars and counterweights shall be of the following:

(A) Capable of supporting, without being compressed solid, a static load having a minimum of twice the total weight of the car and its rated load for car buffers, and the counterweight for counterweight buffers.

(B) Compressed solid with a static load of three times the weight of the car and its rated load for car buffers, and the counterweight for counterweight buffers.

EXCEPTION: When the requirements of Section 1604.5(b)(2) necessitate a greater load rating.

(3) Marking Plate.

Each spring buffer shall have permanently attached to it a metal plate marked in a legible and permanent manner to show its stroke and load rating.

(c) Construction and Requirements for Oil Buffers.

(1) When oil buffers are used they shall comply with Section 3031 of the Elevator Safety Orders.

(2) When oil buffers are used and the air temperature is below 0°F, means to maintain the temperature of the oil above 0°F or above the pour point of the oil, whichever is lower, shall be provided.

(3) Terminal speed limiting devices installed in connection with reduced stroke oil buffers shall conform to the requirements of Section 1604.23.

### § 1604.15. Counterweights.

(a) General Requirements.

(1) Sectional Counterweights.

Sectional counterweights and frames shall be so designed as to retain the weights securely in place.

(2) Horizontal Clearances Between Car and Counterweight and Counterweight Screen.

The clearance between the car and the counterweight shall be not less than 1 inch. The clearance between counterweight and the counterweight screen and between counterweight and the hoistway enclosure shall be not less than 3/4 inch.

(b) Design Requirements for Counterweights.

The weight of the counterweight shall be not more than the total weight of the car plus 50% of the rated load.

(c) Cars Counterbalancing One Another.

A hoist car shall not be used to counterbalance another hoist car.

(d) Compensating Chain or Rope Fastenings.

Compensating chains or ropes, when used, shall be fastened to the counterweight or to the counterweight frame and shall not be fastened to tie rods.

### § 1604.16. Car Frames and Platforms.

(a) Requirement for Car Frames.

Every hoist car shall have a frame. The car frame and platform may be an integral part of the car construction.

(b) Guide Members.

Car frames shall be guided on each guide member by upper and lower guide shoes or rollers attached to the frame.

(c) Design of Car Frames and Guide Shoes or Rollers.

The frame and its guide shoes or rollers shall be designed to withstand the forces resulting under the loading conditions for which the hoist is designed.

(d) Underslung or Subpost Car Frames.

The vertical distance between the top and bottom guide shoes of a hoist car having a subpost car frame, or having an underslung car frame located entirely below the car platform, shall be not less than 40% of the distance between guide rails.

(e) Car Platforms.

Every car shall have a platform consisting of a nonperforated floor attached to a platform frame supported by the car frame and extending over the entire area within the car enclosure. The platform frame members and the floor shall be designed to withstand the forces developed under the loading conditions for which the hoist is designed and installed.

(f) Materials for Car Frames and Platform Frames.

(1) Car frames and outside members of platform frames shall be made of steel or other metals.

(2) Cast iron shall not be used for any part subject to tension, tosion, or bending.

EXCEPTION: Exceptions are guide rollers, guide shoes and compensating rope anchorages.

(3) Steel, where used in the construction of car frames and platforms, shall conform to the requirements given in Sections 1604.16(f)(3)(A) and 1604.16(f)(3)(B).

EXCEPTION: Steels of greater strength than those specified may be used provided they have an elongation of not less than 22% in a length of 2 inches and provided that the stresses and deflections conform to the requirements of Sections 1604.16(h) and 1604.16(i), respectively.

(A) Car Frame and Platform Frame Members.

Steel shall be rolled, forged, or cast, conforming to the requirements of the following American National Standards:

1. Rolled and Formed Steel: American National Standard Specification for Structural Steel, G41.5–1970 (ASTM A36–69) or American National Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates of Structural Quality, G24.2–1972 (ASTM A283–70a), Grade D.

2. Forged Steel: American National Standard Specification for Carbon Steel Forgings for General Industrial Use, G55.20–1969 (ASTM A235–67), Class C.

3. Cast Steel: American National Standard Specifications for Mild to Medium strength Carbon Steel Castings for General Application, G50.1–1972 (ASTM A27–71), Grade 60/30.

(B) Rivets, Bolts, and Rods.

Steel used for rivets, bolts, and rods shall conform to the following American National Standards:

1. Rivets: American National Standard Specification for Steel Structural Rivets, G42.2–1968 (ASTM A502–65).

2. Bolts and Rods: American National Standard Specification for Low Carbon Steel Externally and Internally Threaded Standard Fasteners, G38.5–1969 (ASTM A307–68).

(4) Metals other than steel may be used in the construction of car frames and platforms provided the metal used has the essential properties to meet all the requirements for the purpose in accordance with good engineering practice, and provided the stresses and deflections conform to the requirements of Sections 1604.16(h) and 1604.16(i), respectively.

(g) Car Frame and Platform Connections.

Connections between members of car frames and platforms shall be riveted, bolted, or welded, and shall conform to the following requirements:

(1) Bolts. Bolts, where used through sloping flanges of structural members, shall have bolt heads of the tipped head type or shall be fitted with beveled washer.

(2) Nuts.

Nuts, used on sloping flanges of structural members, shall seat on beveled washers.

(3) Welding.

Welding of parts upon which safe operation depends shall be performed in accordance with the requirements of the American Welding Society D1.1. At the option of the manufacturer, the welders may be qualified by one of the following:

(A) The manufacturer.

(B) A professional consulting engineer.

(C) A recognized testing laboratory.

EXCEPTION: Tack welds not later incorporated into finished welds carrying calculated loads are an exception.

Table 1

Maximum Allowable Stresses* in Car–Frame and Platform Members and Connections, for Steels Specified in Sections 1604.16(f) (3) (A) and 1604.16 (f) (3) (B)

| *Member* | *Type of Stress* | *Maximum Stress (psi)* | *Area Basis* |
|---|---|---|---|
| Car crosshead | Bending | 12,500 | Gross section |
| Car–frame plank, normal loading | Bending | 12,500 | Gross section |
| Car–frame plank, buffer reaction | Bending | 25,000 | Gross section |
| Car–frame uprights (stiles) | Bending plus tension | 15,000<br>18,000 | Gross section<br>Net section |
| Hoisting–rope hitch | Bending plus | | |
| shapes or plates | tension | 8,000 | Net section |
| Platform framing | Bending | 12,500 | Gross section |
| Platform stringer | Bending | 15,000 | Gross section |
| Threaded brace rods and other tension members | | | |
| except bolts | Tension | 8,000 | Net section |
| Bolts | Tension | 7,000 | Net section |
| Bolts in clearance holes | Shear | 7,000 | Actual area in shear plane |
| Bolts in clearance holes | Bearing | 16,000 | Gross section |
| Rivets or tight body fit bolts | Shear | 10,000 | Actual area in shear plane |
| Rivets or tight body–fit bolts | Bearing | 18,000 | Gross section |
| Any framing member, | | | |
| normal loading | Compression | 14,000 59L R | Gross section |

* Stresses shall be determined on the basis of a uniformly distributed load over the entire area of the car platform or a single concentrated load placed at the center of the car platform.

(h) Maximum Allowable Stresses in Car Frame and Platform Members and Connections.

The stresses in car frame and platform members and their connections, based on the static load imposed upon them, shall be as follows:

(1) Stresses in steel shall not exceed the stresses listed in Table 1. For steels of greater strength, as permitted by the Exception to Section

1604.16(f)(3), the stresses listed in Table 1 may be increased proportionately based on the ratio of the ultimate strengths.

(2) For metals other than steel, the factor of safety shall be not less than is required for steel as given in Table 1.

(i) Maximum Allowable Deflections of Car Frame and Platform Members.

The deflections of car frame and platform members based on the static load imposed upon them, shall be not more than the following:

(1) For crosshead, 1/960 of the span

(2) For plank, 1/960 of the span

(3) For platform frame members, 1/960 of the span. For uprights (stiles), the moment of inertia shall be not less than determined by the following formula:

$$I = \frac{KL^3}{18\,EH}$$

where

I = moment of inertia of member, gross section, $in^4$

K = turning moment, in inch–pounds

L = free length of uprights, in inches

E = modules of elasticity

H = vertical center distance between upper and lower guide shoes

(j) Car Frames With Crosshead Sheaves.

Where a hoisting rope sheave is mounted on the car frame, the construction shall conform to the following requirements:

(1) Where multiple sheaves mounted on separate sheave shafts are used, provision shall be made to take the compressive forces, developed by tension in the hoist ropes between the sheaves, on a strut or struts between the sheave shaft supports, or by providing additional compressive strength in the car frame or car frame members supporting the sheave shafts.

(2) Where the sheave shaft extends through the web of a car frame member, the reduction in area of the member shall not reduce the strength of the member below that required. Where necessary, reinforcing plates shall be welded or riveted to the member to provide the required strength. The bearing pressure shall in no case be more than that permitted in Table 1 for bolts in clearance holes.

(3) Where the sheave is attached to the car crosshead by means of a single threaded rod or specially designed member or members in tension, the following requirements shall be met:

(A) The single rod, member, or members in tension shall have a factor of safety 50% higher than the factor of safety required for the suspension wire ropes, but in no case less than fifteen.

(B) The means for fastening the single threaded rod, member, or members in tension to the car frame shall conform to the requirements of Section 1604.16(k).

(k) Hoisting Rope Hitch Plates or Shapes.

Where cars are suspended by hoisting ropes attached to the car frame by means of rope shackles, the shackles shall be attached to steel hitch plates or to structural or formed steel shapes. Such plates or shapes shall be secured to the underside or to the webs of the car frame member with bolts, rivets or welds so located that the tensions in the hoisting ropes will not develop direct tension in the bolts or rivets. The stresses shall not exceed those permitted in Section 1604.7(a)(3)(C).

(*l*) Platform Side Braces.

Where side bracing and similar members are attached to car frame uprights, the reduction in area of the upright shall not reduce the strength of the upright below that required by Section 1604.16.

## § 1604.17. Car Enclosures.

(a) Material for Enclosures.

Materials for car enclosures and car enclosure linings shall be metal or wood.

(b) Extent of Enclosures.

Personnel hoist cars shall be permanently enclosed on the top and on all sides except the entrance and exit.

(c) Securing of Enclosures.

The enclosure shall be securely fastened to the car platform and so supported that it cannot loosen or become displaced in ordinary service, on the application of the car safety, or on buffer engagement.

(d) Deflection of Walls.

The enclosure walls shall be of such strength and so designed and supported that, when subjected to a pressure of 100 pounds applied horizontally on any 4 square–inch area of the walls of the enclosure, the deflection will not reduce the running clearance below 3/4 inch.

(e) Number of Compartments.

Cars shall have not more than one compartment.

(f) Top Emergency Exits.

An emergency exit with a cover shall be provided in the top of all cars and shall conform to the following requirements:

(1) The exit opening shall have an area of not less than 400 square inches and shall measure not less than 16 inches on any one side.

(2) The exit shall be so located as to provide a clear passageway unobstructed by fixed hoist equipment located in, or on top of, the car.

(3) The exit cover shall open outward.

(g) Car Enclosure Tops.

Tops of car enclosures shall be so designed and installed as to be capable of sustaining a load of 300 pounds on any square area 2 feet on a side and 100 pounds applied at any point. Simultaneous application of these loads is not required.

(h) Equipment on Top of Cars.

A working platform or equipment which is not required for the operation of the hoist or its appliances, except where specifically provided in this Standard, shall not be located on the top of a hoist car.

(i) Use of Glass in Cars.

Wire glass or the equivalent shall be used for vision panels. Plain glass may be used only for car operating appliances.

## § 1604.18. Car Doors, Gates, and Electrical Contacts.

(a) Car Doors and Gates.

(1) Requirement for Door or Gates.

A door or gate shall be provided at each entrance to the car.

(2) Type of Doors.

Doors shall be of the horizontally or vertically sliding type.

(3) Type of Gates.

Gates shall be either of the horizontally or vertically sliding type, subject to the requirements given under Sections 1604.18(a)(5) and 1604.18(a)(9). Scissor type gates shall be prohibited.

(4) Strength of Doors, Gates, and Their Guides, Guide Shoes, Tracks, and Hangers.

Doors and gates and their guides, guide shoes, tracks, and hangers shall be so designed, constructed, and installed that when the fully closed door or gate is subjected to a force of 75 pounds, applied on an area of 1–foot square at right angles to, and approximately at the center of, the door or gate, it will not deflect beyond the line of the car sill. When subjected to a force of 250 pounds similarly applied, doors and vertically sliding gates shall not break or be permanently deformed and shall not be displaced from their guides or tracks. Where multisection doors or gates are used, each panel shall withstand the forces specified.

(5) Sliding Doors and Gates.

Sliding doors or gates shall conform to the following requirements:

(A) Vertically sliding gates shall be of the balanced counterweighted type or the biparting counterbalanced type.

(B) Gates or doors shall be of a design which will reject a ball 1 1/2 inches in diameter.

(C) Doors or gates shall guard the full width and height of the car entrance opening.

(D) Balanced counterweighted doors or gates may be either single or multiple section, and may slide either up or down to open.

(6) Weights for Closing or Balancing Doors or Gates.

Weights used to close or balance doors or gates shall be located outside the car enclosure and shall run in guides or be boxed in. Guides shall be

of metal, and the bottom of the guides or boxes shall be so constructed as to retain the weight if the suspension member fails.

(7) Suspension Members.

Suspension members of vertically sliding car doors or gates, and of weights used with car doors or gates, shall have a factor of safety of not less than five.

(8) Manual Opening of Car Doors or Gates.

Car doors or gates shall be arranged so that when the car is stopped they may be opened by hand from inside the car, subject to the requirements of Section 1604.18(b)(3).

(9) Number of Entrances Permitted.

There shall be not more than two entrances to the car.

EXCEPTION: Special building arrangements requiring more than two entrances and accepted by the division before construction is begun.

(b) Car Door Gate Electric Contacts.

Car doors or gates shall be provided with car door or gate electric contacts.

(1) Location of Car Door or Gate Electric Contacts.

Car door or gate electric contacts shall be so located that they are not readily accessible from the inside of the car.

(2) General Design Requirements.

Car door or gate electric contacts shall conform to the following requirements:

(A) Car door or gate electric contacts shall be positively opened by a lever or other device attached to, and operated by, the door or gate.

(B) Car door or gate electric contacts shall be maintained in the open position by the action of gravity or by a restrained compression spring, or both, or by positive mechanical means.

(3) Mechanical Lock of Car Door on Side Opposite Building or Other Structure.

A mechanical lock shall be provided to prevent opening of the car gate on the side opposite the building or structure, unless the car is at the ground level landing or equivalent.

(4) Closed Position of Car Doors or Gates.

Car doors or gates shall be considered to be in the closed position under the conditions as follows:

(A) Horizontally sliding doors or gates shall be considered to be in the closed position when the clear open space between the leading edge of the door or gate and the nearest face of the jamb does not exceed 2 inches.

(B) Vertically sliding counterweighted doors or gates shall be considered to be in the closed position when the clear open space between the leading edge of the door or gate and the car platform sill does not exceed 2 inches.

(C) Horizontally sliding biparting doors, or vertically sliding biparting counterbalanced doors, shall be considered to be in the closed position when the door panels are within 2 inches of contact with each other.

### § 1604.19. Car and Counterweight Safeties.

(a) Where Safeties are Required.

The car of every personnel hoist shall be provided with one or more car safety devices of one of the types identified under Section 1604.19(d). The safeties shall be attached to the car frame or supporting structure.

All car safeties shall be mounted on a single car frame and shall operate either on one pair of guide members, on tension members conforming to Section 1604.19(p), or on one vertical rack.

(b) Function and Stopping Distance.

The safety device, or the combined safety devices, where furnished, shall be capable of stopping and sustaining the entire car with its rated load from governor–tripping speed.

Type B safeties shall stop the car with its rated load from governor–tripping speed within the range of the maximum and minimum stopping distances as determined in the following formulas:

$$S = \frac{(V)^2}{81{,}144} + 0.84$$

and $$S' = \frac{(V)^2}{231{,}840}$$

where

S = maximum stopping distance, in feet

S′ = minimum stopping distance, in feet

V = governor–tripping speed, in feet per minute

Table 2 shows the maximum and minimum stopping distances for various governor–tripping speeds.

(c) Counterweight Safeties.

Counterweight safeties, where furnished shall conform to the requirements for car safeties.

EXCEPTIONS:

1. Where otherwise specified in Section 1604.19.
2. For rated speeds of not over 150 feet per minute, counterweight safeties may be operated as a result of the breaking or slackening of the hoisting ropes and may be of the inertia or other approved type without governors.

(d) Types of Safeties.

Car safety devices (safeties) are identified and classified on the basis of performance characteristics. In general, there are three types of safeties that operate to apply pressure on the guide rails or tension members and one type that uses a separately mounted rack and accompanying pinion gear. The former are classified A, B, and C based upon how the safety begins to apply pressure.

(1) Type A Safeties.

These are safeties which develop a rapidly increasing pressure on the guide members during the stopping interval, the stopping distance being very short due to the inherent design of the safety. The operating force is derived entirely from the mass and the motion of the car or the counterweight being stopped. These safeties apply pressure on the guide or tension members through eccentrics, rollers, or similar devices without any flexible medium purposely introduced to limit the retarding force and increase the stopping distance.

(2) Type B Safeties.

These are safeties which apply limited pressure on the guide or tension members during the stopping interval and which provide stopping distances that are related to the mass being stopped and the speed at which application of the safety is initiated. Retarding forces are reasonably uniform after the safety is fully applied. Continuous tension in the governor rope may or may not be required to operate the safety during the entire stopping interval. Minimum and maximum distances are specified on the basis of governor–tripping speed.

(3) Type C Safeties (Type A With Oil Buffers).

These are safeties which develop retarding forces during the compression stroke of one or more oil buffers interposed between the lower members of the car frame and a governor operated Type A auxiliary safety plank applied on the guide or tension members. The stopping distance is equal to the effective stroke of the buffers.

(4) Rack and Pinion Safeties.

These are safeties in which a freely rotating safety pinion, a governor, and a safety device may form an integral unit mounted on the car. The freely rotating pinion travels on a stationary rack mounted vertically on the hoist structure. The rotating pinion drives the governor. When the downward speed of the car reaches the tripping value, the rotating governor actuates the safety device, which, in turn, brings the car to a gradual stop.

Table 2
Maximum and Minimum Stopping Distances
For Other Than Instantaneous

| Rated Speed (feet per minute) | Governor–Trip Speed (feet per minute) | Maximum Stopping Distances (feet–inches) Minimum | Maximum |
|---|---|---|---|
| 0 to 125 | 175 | 0–1 | 1–3 |
| 150 | 210 | 0–2 | 1–4 |
| 175 | 250 | 0–3 | 1–7 |
| 200 | 280 | 0–4 | 1–10 |
| 225 | 308 | 0–5 | 2–0 |
| 250 | 337 | 0–6 | 2–3 |
| 300 | 395 | 0–8 | 2–9 |
| 350 | 452 | 0–1 | 03–4 |
| 400 | 510 | 1–1 | 4–10 |
| 450 | 568 | 1–5 | 4–10 |
| 500 | 625 | 1–8 | 5–8 |
| 600 | 740 | 2–4 | 7–7 |

(e) Safeties to Stop Ascending Cars or Counterweights.

Safeties shall not stop ascending car or counterweight.

EXCEPTION: Safeties of the rack and pinion type.

(f) Governor Actuated Safeties and Safety Switches.

(1) Car safeties and counterweight safeties, where provided, shall be actuated by separate speed governors.

EXCEPTION: Speed governors are not required for the operation of counterweight safeties of hoists having a rated speed of not more than 150 feet per minute.

(2) Every car safety shall be provided with a switch operated by the car safety mechanism. This switch shall conform to the requirements given under Section 1604.20(d).

(g) Limits of Use of Various Types of Safeties.

(1) Type A (Instantaneous) Safeties.

Type A safeties may be used on hoists having a rated speed of not more than 200 feet per minute.

(2) Type C Safeties.

Spring buffers may be substituted for oil buffers on Type C car safeties for rated speeds up to and including 300 feet per minute provided that the springs do not fully compress during the operation of the car safety with rated load in the car, and the rate of retardation conforms to the requirements of Section 1604.14(c)(1).

(h) Application and Release of Safeties.

(1) Means of Application.

Safeties shall be applied mechanically. Electric, hydraulic, or pneumatic devices shall not be used to apply the safeties required by Section 1604.19 nor to hold such safeties in the retracted position.

(2) Level of Car on Safety Application.

The application of the safety to stop the car, with one–fourth of its rated load distributed on each quarter of the platform symmetrically with relation to the center lines of the platform, shall not cause the platform to be out of level more than 3/8–inch per foot in any direction.

(3) Release.

When car safeties are applied, no decrease in tension in the governor rope or motion of the car in the down direction shall release the safeties, but such safeties may be released by the motion of the car in the up direction.

(4) Force Providing Stopping Action.

Safeties shall be so designed that on their application the forces which provide the stopping action shall be compressive forces on either side of the guide or tension member section.

EXCEPTION: For rack and pinion safeties, the stopping action may be obtained by the engagement of the teeth of the safety pinion on the car and the stationary vertical rack.

(i) Minimum Clearance on Guide Members.

In the normally retracted position of the safety, the distance between the member gripping faces of the safety parts shall not be less than the thickness of the guide member plus 0.14 (9/64) inch, and the clearance on any side between the gripping face and the guide member shall be not less than 0.0625 (1/16) inch as measured on the side of the rail toward which the car frame is pressed with sufficient force to take up all clearances in the guide shoe assembly. Safety jaws, which in the retracted position, shall be so restrained as to prevent a reduction of this minimum clearance.

(j) Maximum Permissible Movement of Governor Rope or Car.

(1) Type B and C Safeties.

For all Type B and C safeties, the movement of the governor rope relative to the car or the counterweights, respectively, required to operate the safety mechanism from its fully retracted position to a position where the safety jaws begin to exert pressure against the guide members shall not exceed the following values based on rated speed:

(A) For car safeties: 200 feet per minute or less, 42 inches; 201 to 375 feet per minute, 36 inches; over 375 feet per minute, 30 inches.

(B) For counterweight safeties: all speeds, 42 inches.

Drum operated car and counterweight safeties, requiring continual unwinding of the safety drum rope to fully apply the safety, shall be so designed that not less than three turns of the safety rope will remain on the drum after the overspeed test of the safety has been made with rated load in the car.

(2) Rack and Pinion Safeties.

For rack and pinion safeties, the travel of the car measured from the governor–tripping time to the full–stop time shall not exceed the following values based on rated speed:

(A) For car safeties: 200 feet per minute or less, 64 inches; 201 to 375 feet per minute, 76 inches; over 375 feet per minute, 78 inches.

(B) For counterweight safeties: all speeds, 78 inches.

(k) Factors of Safety of Safety Parts.

Parts of safeties, except springs, shall have a factor of safety of not less than 3.5, and the materials used shall have an elongation of not less than 15% in a length of 2 inches. Forged, cast, or welded parts shall be stress relieved.

EXCEPTION: Safety rope drums, leading sheaves, and their supporting brackets and safety jaw gibs shall be made of metal and shall have a factor of safety of not less than ten.

Rope used as a connection from the safety to the governor rope, including rope wound on the safety rope drum, shall be not less than 3/8–inch in diameter and shall be made of a corrosion resistant metal. Tiller rope construction shall not be used. The factor of safety of the rope shall be not less than five.

All gears shall meet the following standards of the American Gear Manufacturers Association: AGMA 210.02, AGMA 220.02 and AGMA 240.01.

The factors of safety shall be based upon the maximum stresses developed in the parts during the operation of the safety when stopping rated load from governor–tripping speed.

Springs may be used in the operation of car or counterweight safeties. Where used, and where partially loaded prior to safety operation, the loading on the spring shall not produce a fiber stress exceeding one–half the elastic limit of the material. During operation of the safety, the fiber stress shall not exceed 85% of the elastic limit of the material. Helical springs, where used, shall be in compression.

Safety rope loading sheave brackets and other safety operating parts shall not be attached to, or supported by, wood platform members.

(l) Corrosion Resistant Bearings.

Bearings in safeties and of the safety operating mechanism shall be of corrosion resistant construction with one or both members of a bearing made of, or electroplated with, a corrosion resistant material.

(m) Marking Plates.

A metal plate shall be securely attached to each safety so as to be readily visible and shall be marked in a legible and permanent manner with letters and figures not less than 1/4–inch in height, indicating the following:

(1) The maximum tripping speed, in feet per minute, for which the safety may be used.

(2) The maximum weight, in pounds, which the safety as installed is designed to stop and sustain.

(n) Releasing Carriers.

The governor rope releasing carrier on the car or on the counterweight shall be set to require a tension in the governor rope, to pull the rope from the carrier, of not more than 60% of the pull through tension developed by the governor, and the carrier shall be designed so that the pullout tension cannot be adjusted in a normal manner to exceed the amount specified.

(o) Rail Lubricants.

Rail lubricants or coatings which will reduce the holding power of the safety or prevent its functioning as required in 1604.19(b) shall not be used. The use of graphite for lubricants shall be prohibited.

(p) Application of Safeties Upon Suspended Tension Members.

Safeties that apply on tension members suspended from the top of the hoistway and anchored in the pit in lieu of guide members shall be in conformity with the following requirements.

(1) The tension members shall have a minimum factor of safety of ten when the car and its rated load is stopped, with an average retardation of 32 feet per second per second.

(2) Steel wire rope tension members shall be inspected by the procedure set forth under Sections 1604.25(j) and 1604.25(k).

Table 3
Maximum Speeds, in Feet Per Minute, at Which Speed Governor Trips and Governor Overspeed Switch Operates

| *Rated Speed* | *Maximum Governor-Trip Speed* | *Maximum Speed at Which Governor Overspeed Switch Operates, Down* |
|---|---|---|
| 0–125 | 175 | 175* |
| 150 | 210 | 210* |
| 175 | 250 | 225 |
| 200 | 280 | 252 |
| 225 | 308 | 277 |
| 250 | 337 | 303 |
| 300 | 395 | 355 |
| 350 | 452 | 407 |
| 400 | 510 | 459 |
| 450 | 568 | 512 |
| 500 | 625 | 563 |
| 600 | 740 | 703 |

* Governor overspeed switch not required on car speed governors.

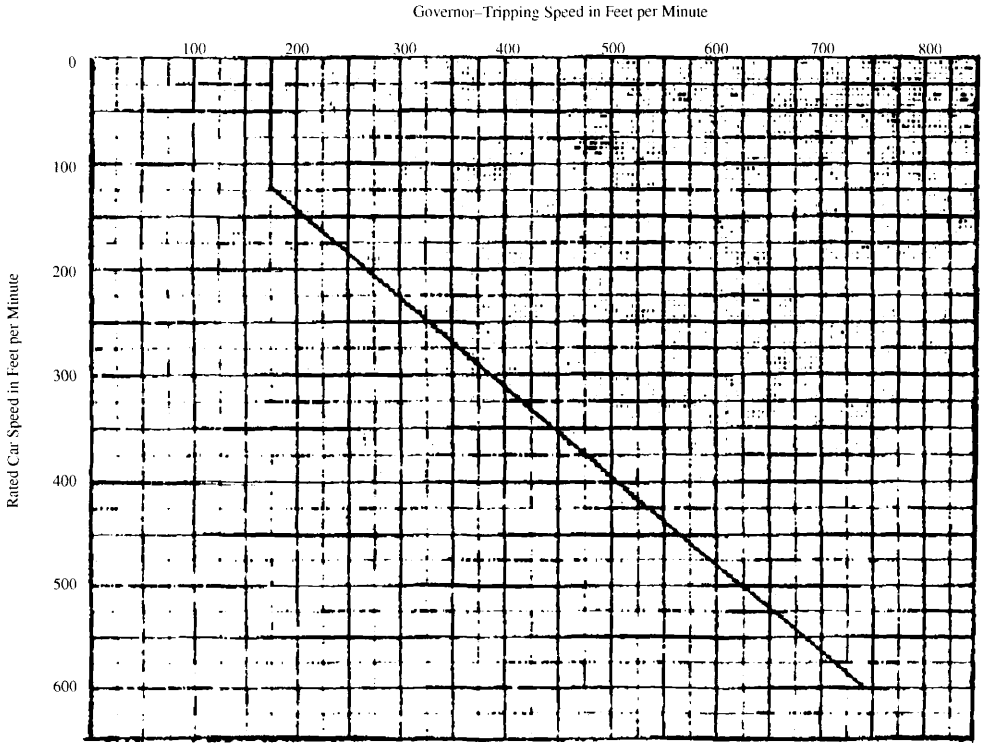



Fig. 3
Maximum Governor–Tripping Speeds

## § 1604.20. Governors.

(a) Requirement for Governors and Location.

Car safeties, and counterweight safeties, where furnished, shall be actuated by a speed governor.

The governor shall be located where it cannot be struck by the car or the counterweight in case of over–travel and where there is adequate space for full movement of governor parts.

(b) Tripping Speeds.

(1) Car Governors.

Governors for car safeties shall be set to trip at overspeeds as follows:

(A) At not less than 115% of rated speed.

(B) At not more than the tripping speed listed opposite the applicable rated speed in Table 3. Maximum tripping speeds for intermediate rated speeds shall be determined from Figure 3.

(2) Counterweight Governors.

Governors for counterweight safeties, where provided, shall be set to trip at an overspeed greater than, but not more than 10% above, that at which the car speed governor is set to trip.

(c) Sealing and Painting.

Governors shall have their means of speed adjustment sealed after test. If speed governors are painted after sealing, all bearing and rubbing surfaces shall be freed of, or kept free from, paint and a hand test made to determine that all parts operate freely as intended. Seals shall be of a type which will prevent readjustment of the governor–tripping speed without breaking the seal.

(d) Governor Overspeed and Safety Switches.

(1) A switch shall be provided on the governor and operated by the overspeed action of the governor. A switch shall be provided on the gov-

ernor when used with a counterweight safety. Every car safety shall be provided with a switch operated by the car safety mechanism when the safety is applied. These switches shall, when operated, remove power from the driving-machine motor and brake before, or at the time of, application of the safety. The governor overspeed switch and the safety switch may be the same switch on rack and pinion safeties.

EXCEPTION: A period of five years from the effective date of these orders will be allowed during which the overspeed switch on existing governors may be omitted where the governor is of a type not designed to operate a switch.

(2) The setting of the car governor overspeed switch shall conform to the following requirements:

(A) The car governor overspeed switch shall open in the down direction of the hoist at not more than 100% of the speed at which the governor is set to trip in the down direction.

(B) The switch, when set as specified in Section 1604.20(d)(2)(A), shall open in the up direction at not more than 100% of the speed at which the governor is set to trip in the down direction.

EXCEPTION: Rack and pinion safeties.

(3) Switches used to perform the functions specified shall be positively opened and shall remain in the open position until manually reset. Switches operated by the car safety mechanism shall be of a type which will not reset unless the car safety mechanism has been returned to the "off" position.

(e) Governor Ropes and Tripping Mechanisms.

(1) Material and Factor of Safety.

Governor ropes shall be of iron, steel, nickel-copper alloys (Monel Metal, or the equivalent), phosphor bronze, or stainless steel, of regular lay construction, and shall be not less than 3/8-inch in diameter. Tiller rope construction shall not be used.

The factor of safety of governor ropes or governor-tripping mechanisms shall be not less than five.

(2) Replacement of Existing Governor Ropes.

Replacement governor ropes shall be of the same size, material, and construction as the rope originally furnished by the hoist manufacturer, except that a rope of the same size but of either different material or construction may be employed provided there is conformance with the requirements of Section 1604.20(g) and a test is made of the car or counterweight safety and speed governor with the new rope to demonstrate that the safety will function as required by Section 1604.19(b).

(3) Governor Rope Clearance.

During normal operation of the hoist, the governor rope shall run free and clear of the governor jaws, rope guards, or other stationary parts.

(4) Splicing Governor Ropes.

Governor ropes shall not be lengthened or repaired by splicing.

(f) Design of Governor Jaws.

Type B and C car and counterweight safeties shall be actuated by a governor equipped with rope-grip jaws which will permit the governor rope to pull through the jaws. The maximum tension in the governor rope to cause it to slip through the governor jaws shall not exceed 1/5 of the rated ultimate strength of the rope.

Governor jaws shall be of such shape and minimum length that no appreciable damage to, or deformation of, the rope shall result from the stopping action of the jaws in operating the car or counterweight safety.

(g) Design of Speed Governor Sheaves and Traction Between the Speed Governor Rope and Sheaves.

The arc of contact between the governor rope and the governor sheaves shall, in conjunction with a governor-rope tension device, provide sufficient traction to cause proper functioning of the governor.

Governor-sheave grooves shall have machine-finished surfaces. Governor tension sheaves shall have machine-finished grooves for rated car speeds of more than 200 feet per minute. Machined governor-sheave grooves shall have a groove diameter of not more than 1 1/8 times the diameter of the governor rope.

The pitch diameter of governor sheaves and governor tension sheaves shall be not less than the product of the diameter of the rope and the applicable multiplier in the following list, based on the rated speed and the number of strands in the rope:

| *Rated Speed* | *No. of Strands* | *Multiplier* |
|---|---|---|
| 200 feet per minute or less | 6 | 42 |
| 200 feet per minute or less | 8 | 30 |
| Over 200 feet per minute | 6 | 46 |
| Over 200 feet per minute | 8 | 32 |

(h) Governor Marking Plate.

A plate shall be securely attached to each governor and shall be marked in a legible and permanent manner with letters and figures not less than 1/4-inch in height, indicating the following:

(1) The speed, in feet per minute, at which the governor is set and sealed to trip the governor rope-grip jaws.

(2) The size, material and construction of the governor rope on which the governor jaws were designed to operate.

## § 1604.21. Capacity and Loading.

(a) Inside Net Platform Area.

The inside net platform area (see Figure 4) of the hoist car is determined by the rated capacity of the hoist and shall be no greater than that given in Table 4.

EXCEPTION: The rated capacity of hoists with existing oversized cars shall be based on not less than 65 pounds per square foot of inside net platform area. A period of five years from the effective date of these Orders will be allowed for existing personnel hoists to be made to comply with Section 1604.21(a).

Table 4
Relationship of Hoist Rated Capacity
to Inside Net Platform Area

| *Rated Load (pounds)* | *Inside Net Platform Area (square feet)* |
|---|---|
| 2,000 | 24.2 |
| 2,500 | 29.1 |
| 3,000 | 33.7 |
| 3,500 | 38.0 |
| 4,000 | 42.2 |
| 4,500 | 46.2 |
| 5,000 | 50.0 |
| 10,000 | 88.0 |

(b) Capacity and Data Plates.

Every hoist car shall be provided with a capacity plate and a data plate permanently and securely fastened in place. Capacity plates shall be located in a conspicuous place inside the car. Data plates shall be located on the car crosshead.

Exception: For cantilever cars having no crosshead, the data plate shall be located inside the car.

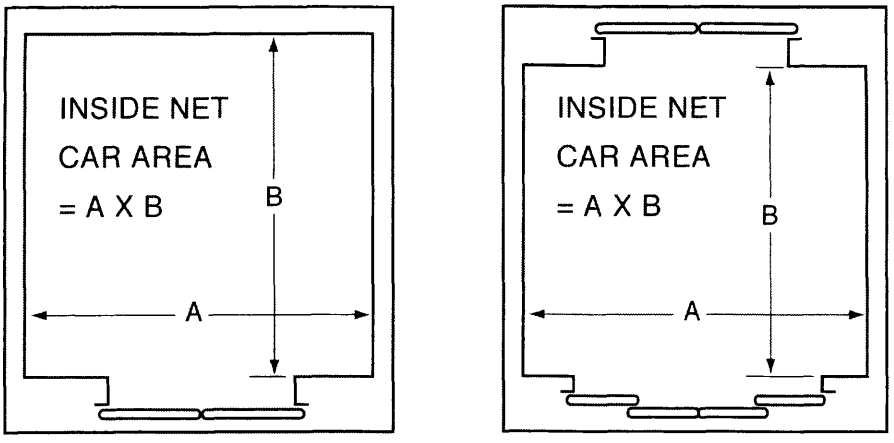



Figure 4 — Inside Net Platform Areas For Personnel–Hoist Cars

(c) Information Required on Plates.

(1) Capacity plates shall indicate the following:

(A) The rated capacity of the car, in pounds.

(B) The number of persons (200 pounds per person).

(2) Data plates shall indicate the following:

(A) The weight of the car, including safety and all auxiliary equipment attached thereto.

(B) The rated load and speed.

(C) The wire rope data required under 1604.25(b).

(d) Material and Marking of Plate.

Plates shall have letters and figures printed, stamped, or etched or cast on the surface of a durable plate in such a manner as to be readily legible at all times. The height of the letters and figures shall not be less than 1–inch for capacity plates, and 1/8–inch for data plates.

(e) Overload Devices.

Overload devices shall not be permitted.

HISTORY

1. Change without regulatory effect repealing and adopting new Figure 4 within subsection (b) filed 5–19–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 21).

## § 1604.22. Driving Machines, Sheaves, and Drums.

(a) Type of Driving Machines.

Driving machines shall be powered by electric or hydraulic motors. Hydraulic units, where used shall be electrically driven. The hydraulic drive shall consist of an oil storage tank, a hydraulic pump and a hydraulic motor brake and shall conform to the following requirements:

(1) Valves, piping and fittings shall not be subjected to working pressures exceeding those recommended by the manufacturer for the type of service for which they are used.

(2) Piping shall be so supported as to eliminate undue stresses at joints and fittings, particularly at any section of the line subject to vibration.

(3) Flexible connections shall—where installed in high pressure lines—have a bursting strength of not less than three times the working pressure. Flexible joints may be used in hydraulic lines connecting control or check valves to the motor provided the failure of the flexible sealing element shall not permit separation of the parts connected.

(4) Each pump or group of pumps shall be equipped with a relief valve conforming to the following requirements:

(A) The relief valve shall be located between the pump and the check valve and shall be of such a type and so installed in a bypass connection that the valve cannot be shutoff from the hydraulic system.

(B) The relief valve shall be preset to open at a pressure not greater than 125 percent of the working pressure at the pump.

(C) The size of the relief valve and bypass shall be sufficient to pass the maximum rated capacity of the pump without raising the pressure more than 20 percent above that at which the valve opens. Two or more relief valves may be used to obtain the required capacity.

(D) Relief valves having exposed pressure adjustments, if used, shall have their means of adjustment sealed after being set to the correct pressure.

(5) An electric interlock shall be provided to prevent the start or the movement of the hoist car unless the pump operates at the normal operating speed and pressure.

(6) The brake shall remain in applied position until the pump operates at the normal operating speed and pressure and the movement of the hoist car is initiated.

(7) All components of the hydraulic system shall be shielded.

(b) Winding Drums.

Winding–drum machines may be used irrespective of car travel provided that the drums are grooved for hoisting wire rope. Grooves shall be machine–finished and shall be of the helical or parallel type.

If drums are equipped with helical grooving, only one layer of rope shall be permitted on the drum. If drums are equipped with parallel grooving, (LeBus System, or the equivalent) more than one, but not more than four, layers of rope shall be permitted on the drum.

(c) Car Speed.

The car speed for all drives shall not exceed 600 feet per minute.

(d) Diameter of Drums and Sheaves.

Driving sheaves and drums shall have a pitch diameter of not less than forty times the diameter of the hoisting wire rope. Overhead and deflector sheaves shall have a diameter of not less than thirty times the rope diameter.

EXCEPTION: Where 8 x 19 wire hoist rope is used on machines existing at the time of the effective date of these Orders, sheaves and drums may have a diameter of not less than 32 times the rope diameter.

(e) Worms and Worm Gears.

Worms and worm gears, where used in the drive machine, shall be of steel and bronze, respectively.

(1) Helical or parallel drives must run in oil.

(f) Friction Gearing and Clutches.

Friction gearing or clutch mechanisms shall be prohibited.

(g) Brakes.

The driving machine shall be equipped with a friction brake applied by a spring or by gravity and released electrically or hydraulically. The brake shall be designed to have a capacity sufficient to stop and hold the car at rest at 125% of its rated load.

(h) Rack and Pinion Drive.

The rack and pinion drive shall consist of one or more power–driven rotating pinions mounted on the car and arranged to travel on a stationary vertical rack mounted on the hoist structure. The drive shall have at least one pinion, one rack, and two backup rollers. The pinions and rack shall be of steel and shall comply with the following standards of the American Gear Manufacturing Association: AGMA 210.22, AGMA 220.02, and AGMA 240.01. Driving machines located within the car shall be fully en-

closed with solid or open metal and if in a cabinet, the cabinet shall be locked.

(i) Factors of Safety.

The factor of safety to be used in the design of driving machines and in the design of sheaves used with hoisting and compensating ropes shall be not less than the following:

(1) Eight for steel, bronze, or for other metals having an elongation of at least 14% in a length of 2 inches.

(2) Ten for cast iron, or for other metals having an elongation of less than 14% in a length of 2 inches.

The load to be used in determining the factor of safety shall be the resultant of the maximum tensions in the ropes leading from the sheave or drum with car at rest and with rated load in the car.

### § 1604.23. Terminal Stopping Devices.

(a) General Requirements.

Normal- and final-terminal stopping device switches shall conform to the following requirements:

(1) Where located on the car or on the hoist structure, normal- and final-terminal stopping device switches shall be of the enclosed type and securely mounted in such a manner that the movement of the switch lever or roller to open the contacts shall be as nearly as possible in a direction at right angles to a vertical plane through the face of the car guide members.

(2) Operating cams shall be of metal and shall be rigid.

(3) The switch contacts shall be directly opened mechanically.

Arrangements which depend on a spring or gravity, or both, to open the contacts shall not be used.

(b) Normal-Terminal Stopping Devices.

(1) Where Stopping Devices are Required and Function.

Upper and lower normal-terminal stopping devices shall be provided to stop the car automatically, at or near the top and bottom terminal landings, with any load up to and including rated load in the car and from any speed attained normal stopping means and of the final-terminal stopping device. The device shall be so designed and installed that it will continue to function until the final-terminal stopping device operates. The normal-terminal stopping device may be used as the normal stopping means.

(2) Location of Stopping Switches.

Stopping switches for normal-terminal stopping devices shall be located as follows:

(A) Stopping switches for traction machines shall be located on the car, on the hoist structure, or in the machine room, and shall be operated by the movement of the car.

(B) Stopping switches for winding-drum machines shall be located on the car or on the hoist structure and shall be operated by the movement of the car.

(C) Rack and pinion hoists shall have normal-terminal stopping switches located on the cage and operated by cams attached to the hoist

[The next page is 205.]

structure or switches located on the hoist structure and operated by cams attached to the car.

(3) Requirements for Stopping Switches in Machine Rooms.

Stopping switches located in a machine room shall conform to the following requirements:

(A) The stopping–switch contacts shall be mounted on, and operated by, a stopping device mechanically connected to, and driven by, the car. Stopping devices depending on friction or traction shall not be used.

(B) Tapes, chains, ropes, or similar devices mechanically connecting the stopping device to the car and used as a driving means shall be provided with a device which will cause the electric power to be removed from the elevator driving–machine motor and brake if the driving means fails.

(C) Only one set of floor–stopping contacts is necessary for each terminal landing on floor controllers or other similar devices used to stop the car automatically at the landings (such as automatic operation, signal operation, etc.), provided these contacts and the means for operating them conform to the requirements of Sections 1604.23(b)(3)(A) and 1604.23(b)(3)(B). These contacts may then serve also normal–terminal stopping devices.

(c) Final–Terminal Stopping Devices.

(1) Where Stopping Devices Are Required and Function.

Final–terminal stopping devices shall be provided and arranged to cause the electric power to be removed automatically from the hoist driving–machine motor and brake after the car has passed a terminal landing. The device shall be set to function as close to the terminal landing as practicable but so that under normal operating conditions it will not function when the car is stopped by the normal–terminal stopping device. Where spring buffers are provided, the device shall function before the buffer is engaged. The device shall be so designed and installed that it will continue to function at the following:

(A) At the top terminal landing, until the car has traveled above this landing a distance equal to the counterweight runby plus 1 1/2 times the buffer stroke, but in no case less than 2 feet.

(B) At the bottom terminal landing, until the car rests on its fully compressed buffer.

The operation of final–terminal stopping devices shall prevent movement of the car by the normal operating devices in both directions of travel and shall be reset manually.

(2) Location.

Final–terminal stopping devices shall be located as follows:

(A) Hoists having traction machines shall have final–terminal stopping switches located on the hoist structure and operated by cams attached to the car.

(B) Hoists having winding–drum machines shall have final–terminal stopping switches located on, and operated by, the driving machine and also stopping switches located on the hoist structure and operated by cams attached to the car.

(C) Rack and pinion hoists shall have final–terminal stopping devices located on the cage and operated by cams attached to the hoist structure or switches located on the hoist structure and operated by cams attached to the car.

(3) Controller Switches Controlled by Final–Terminal Stopping Device.

The normal– and final–terminal stopping device shall not control the same controller switches unless two or more separate and independent switches are provided, two of which shall be closed to complete the driving–machine motor–and–brake circuit in either direction of travel. Where a two– or three–phase AC driving–machine motor is used, these switches shall be of the multi–pole type.

The control shall be so designed and installed that a single ground or short circuit may permit either, but not prevent both, the normal– or final–terminal stopping device circuits from stopping the car.

(4) Requirements for Drum–Type Personnel Hists.

Final–terminal stopping devices for drum machines shall conform to the following requirements:

(A) Stopping switches located on, and operated by, the driving machine shall not be driven by chains, ropes, or belts.

(d) Terminal Speed–Limiting Devices.

Terminal speed–limiting devices shall be installed when reduced–stroke oil buffers are used, and car speed exceeds 300 feet per minute. These devices shall conform to the following requirements:

(1) Terminal speed–limiting devices shall operate independently of the normal–terminal stopping device should this device fail to slow down the car at the terminal as intended.

(2) Terminal speed–limiting devices shall provide a retardation not in excess of 32.2 feet per second per second.

(3) Terminal speed–limiting devices shall not apply the car safety.

(4) Terminal speed–limiting devices shall be so designed and installed that a single short circuit caused by a combination of grounds or by other conditions shall not prevent their functioning.

## § 1604.24. Operating Devices and Control Equipment.

(a) Operation and Operating Devices.

(1) Types of Operating Devices. All operating devices shall be of the enclosed electric type. Rope or rod operating devices actuated directly by hand, or rope operating devices actuated by wheels, levers, or cranks, shall not be used.

(2) Operating Devices for Car–Switch Operation Hoists.

Handles of lever–type operating devices of car–switch operation hoists shall be so arranged that they will return to the stop position when the hand of the operator is removed. Car–switch push–buttons shall be of the constant–pressure type so that when the hand is removed from the button the car will stop.

(3) Top–of–Car Operation During Inspection, Maintenance, Repair, Tower Erection and Dismantling.

(A) When persons are on top of a car for the purposes of inspection, maintenance, repair, tower erection or dismantling, the car shall be operated by a competent authorized operator using car top operating devices. In addition, during inspection and maintenance the car shall be operated only in the slowest speed.

(B) Car top operating devices shall conform to the requirements of subsection (a)(2), and be installed in such a manner that the in–car operating devices are not functional when car top operation is selected. The car top operating devices shall include an emergency stop button, conforming to the requirements of Section 1604.24(b)(4) that when activated will stop the car at any point of travel.

(C) Car top operating devices shall be so located and arranged to prevent inadvertent exposure of the operator to hazards of contact with moving counterweights and stationary elements of the hoist tower, tower tie–ins, or adjacent structure.

(D) The tops of cars shall be enclosed by a standard guardrail and toeboard meeting the specifications of Section 3209 of the General Industry Safety Orders except that for the purposes of this subsection, the area between the car top and the midrail may be filled with screen material with maximum openings that will reject a 3/4 inch diameter ball.

(b) Electrical Protective Devices.

Electrical protective devices shall be provided in accordance with the following requirements:

(1) Slack–Rope Switch.

Hoists having winding–drum machines shall be provided with a slack–rope device equipped with a slack rope of the enclosed manually reset type which shall cause the electric power to be removed from the hoist driving–machine motor and brake if the hoisting ropes become slack.

(2) Motor–Generator Running Switch.

Where generator–field control is used, means shall be provided to prevent the application of power to the hoist driving–machine motor and brake unless the motor–generator–set connections are properly switched for the running condition of the hoist. It is not required that the electrical

connections between the hoist driving–machine motor and the generator be opened in order to remove power from the hoist motor.

(3) Motor–Field Excitation Switch.

Where generator–field control is used, a motor–field excitation switch shall be provided which shall cause the electric power to be removed from the hoist driving–machine motor and brake unless current is flowing in the shunt–field circuit of the hoist driving–machine motor.

(4) Emergency Stop Switch.

An emergency stop switch shall be provided in the car and located in, or adjacent to, the car operating pane. When opened, this switch shall cause the electric power to be removed from the hoist driving machine motor and brake. Emergency stop switches shall have the following characteristics:

(A) They shall be of the manually opened and closed type.

(B) They shall have red operating handles or buttons.

(C) They shall be conspicuously and permanently marked "STOP."

(D) They shall be positively opened mechanically and their opening shall not be solely dependent on springs.

(5) Broken–Rope, Tape, or Chain Switches Used in Connection with Machine–Room Normal–Terminal Stopping Switches.

Broken–rope, tape, or chain switches shall be provided in connection with normal–terminal stopping devices located in machine rooms of traction hoists. Such switches shall be opened by a failure of the rope, tape, or chain.

(6) Car–Safety–Mechanism Switch.

A switch conforming to the requirements of Sections 1604.19(f), 1604.20(d)(1), and 1604.20(d)(3) shall be required where a car safety is provided.

(7) Speed–Governor Overspeed Switch.

A speed–governor overspeed switch shall be provided when required by Section 1604.20(d)(1) and shall conform to the requirements given under Sections 1604.20(d)(2) and 1604.20(d)(3).

(8) Final–Terminal Stopping Devices.

Final–terminal stopping devices conforming to the requirements given under Section 1604.23(c) shall be provided.

(9) Terminal Speed–Limiting Devices.

Where reduced–stroke oil buffers are provided or car rated speed exceeds 300 feet per minute, emergency terminal stopping devices conforming to the requirements given under Section 1604.23(d) shall be provided.

(10) Compensating–Rope Sheave Switch.

Compensating–rope sheaves, when used, shall be provided with a compensating–rope sheave switch or switches mechanically opened by the compensating–rope sheave before the sheave reaches its upper or lower limit of travel, to cause the electric power to be removed from the elevator driving–machine motor and brake.

(11) Primary Magnetic Switch.

A primary magnetic contactor shall be provided for main power disconnect, in addition to the normal service disconnect switch as required by Section 1604.24(d). The primary magnetic contactor shall perform its power disconnect function upon any interruption of the final–terminal stopping devices and all other electrical safety devices.

(12) Car Door or Gate Electric Contacts.

Car door or gate electric contacts conforming to the requirements given under Section 1604.18(b) shall be provided for all hoists.

(13) Normal–Terminal Stopping Devices.

Normal–terminal stopping devices conforming to the requirements given under Section 1604.23(b) shall be provided for every hoist.

(14) Motor–Generator Overspeed Protection.

Means shall be provided to cause the electric power to be removed automatically from the hoist driving–machine motor and brake should a motor–generator set, driven by a DC motor, overspeed.

(c) Voltages Permitted in the Hoistway or on the Car.

The maximum system or circuit potential permitted on any equipment in the hoistway or on the car shall not be more than 440 volts (nominal). Where the potential exceeds 120 volts, a grounding conductor shall be incorporated in the traveling cable. The type and size of the grounding conductor and the grounding fastening means shall conform to the requirements of the Electrical Safety Orders.

EXCEPTION: Installations provided with an inherent grounding system for the car.

(1) The nominal rated system or circuit potential for all circuits, in locations other than those specified, shall not exceed 600 volts except for driving motors of motor–generator sets.

(d) Supply–Line Disconnecting Means.

A fused–disconnect switch or a circuit breaker shall be installed and connected into the power–supply line to each elevator motor or motors or to the motor of the motor–generator set. Disconnect switches or circuit breakers shall be of the manually closed multi–pole type arranged to be locked in the open position and their location shall conform to the requirements of the Electrical Safety Orders.

Disconnect means for hoists having a DC primary power supply and rheostatic control shall have the disconnect switch arranged so that its opening will directly open the driving–machine brake circuit.

Where circuit breakers are used as a disconnecting means, they shall not be of the instantaneous type and shall not be opened automatically by a fire alarm system.

(e) Phase–Reversal and Failure Protection.

Hoists having polyphase AC power supply shall be provided with means to prevent the starting of the hoist motor if the phase rotation is in the wrong direction, or there is a failure of any phase.

This protection shall be considered provided in the case of generator–field control having AC motor–generator driving motors, provided a reversal of phase will not cause the hoist driving–machine motor to operate in the wrong direction. Controllers whose switches are operated by polyphase torque motors provide inherent protection against phase reversal or failure.

(f) Devices to Make Electrical Protective Devices Inoperative.

The installation of condensers, the operation or failure of which will cause an unsafe operation of the hoist, is prohibited. No permanent device shall be installed, except as provided in this Standard, which will make any required electrical protective device inoperative.

(g) Driving Machine Brakes.

Driving machine brakes shall not be electrically released until power has been applied to the driving machine motor.

All power feed lines to the brake shall be opened, and the brake shall apply automatically when the following conditions prevail:

(1) The operating device of a car switch or continuous pressure operation hoist is in the stop position.

(2) A floor stop device functions.

(3) Any of the electrical protective devices function.

Under conditions (1) and (2) above, the application of the brake may occur on or before the completion of the slowdown and leveling operations.

The brake shall not be permanently connected across the armature or field of a DC hoist driving–machine motor.

(h) Control and Operating Circuit.

In the design and installation of the control and operating circuits, the following requirements shall be met:

(1) Springs shall not be used to actuate switches, contactors, or relays to break the circuit to stop the hoist.

(2) The completion or maintenance of an electric circuit shall not be used to interrupt the power to the hoist driving–machine motor or brake at the terminal landings, nor to stop the car when the emergency stop switch is opened or any of the electrical protective devices operate.

EXCEPTION: The requirements of Section 1604.24(h)(2) do not apply to dynamic braking or to speed control switches.

(3) The failure of any single magnetically operated switch, contactor, or relay to release in the intended manner, or the occurrence of a single accidental ground, shall not permit the car to start or run if any hoistway door interlock is unlocked or if any hoistway door or car door or gate contact is not in the closed position.

(4) Where generator–field control is used, means shall be provided to prevent the generator from building up and applying sufficient current to the hoist driving–machine motor to move the car when the hoist motor control switches are in the "off" position. The means used shall not interfere with maintenance of an effective dynamic braking circuit during stopping and standstill conditions.

(i) Absorption of Regenerated Power.

Where a power source is used which, in itself, is incapable of absorbing the energy generated by an overhauling load, means of absorbing sufficient energy shall be provided on the load side of each hoist power supply–line disconnecting means to prevent the hoist from attaining governor–tripping speed or a speed in excess of 125% of rated speed, whichever is less.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Change without regulatory effect amending subsections (b)(12) and (h)(3) and adding NOTE filed 12–28–2007 pursuant to section 100, title 1, California Code of Regulations (Register 2007, No. 52).
2. Amendment of subsection (a)(3), new subsections (a)(3)(A)–(D), repealer of subsection (b)(6), subsection renumbering and amend of newly designated subsection (b)(10) filed 7–17–2008; operative 8–16–2008 (Register 2008, No. 29).

## § 1604.25. Hoisting and Counterweight Ropes, and Rope Connections.

(a) Suspension Means.

Hoist cars shall be suspended by steel wire ropes attached to the car frame or passing around sheaves attached to the car frame specified in Section 1604.16.

Exception: Exceptions are hoists with rack and pinion machines.

(1) Only steel wire ropes having the commercial classification "elevator wire rope," or specifications recommended by wire rope manufacturers for hoist use, shall be used for the suspension of hoist cars or for the suspension of counterweights.

(b) Wire Rope Data.

(1) Wire Rope Data on Crosshead Data Plate.

The crosshead data plate required by Section 1604.21(b) shall bear the following wire rope data:

(A) The number of ropes.

(B) The diameter, in inches.

(C) The manufacturer's rated breaking strength per rope, in pounds.

(2) Wire Rope Data on Rope Data Tag.

A metal data tag shall be securely attached to one of the wire rope fastenings. This data tag shall bear the following wire rope data:

(A) The diameter, in inches.

(B) The manufacturer's rated breaking strength.

(C) The grade of material used.

(D) The month and year the ropes were installed.

(E) Whether rope is non–preformed or preformed.

(F) Construction classification.

(G) Name of person or firm that installed ropes.

(H) Name of manufacturer of the rope.

A new tag shall be installed at each rope renewal. The material and marking of the rope data tag shall conform to the requirements of Section 1604.21(d), except that the height of the letters and figures shall be not less than 1/16–inch.

(3) Wire Rope Data Log.

A log shall be kept by the employer at the work site office which will indicate the following:

(A) The day, month, and year the ropes were installed, and whether they were new or used when installed.

(B) The day, month, and year the ropes were refastened to permit increase in the height of the hoist.

(C) The name of the person or firm who performed the functions described in 1604.25(b)(3)(A) and (B).

(c) Factor of Safety.

The factors of safety of the suspension wire ropes shall be not less than shown in Table 5. Figure 5 gives the minimum factors of safety for intermediate rope speeds. The factor of safety shall be based on the actual rope speed corresponding to the rated speed of the car. The factor of safety shall be calculated by the following formula:

$$f = \frac{S \times N}{W}$$

where

S = Manufacturer's rated breaking strength of one rope.

N = Number of runs of rope under load (see Note).

W = Maximum static load imposed on all car ropes, with the car and its rated load at any position in the hoistway.

NOTE: In the case of multiple roping, the number of runs of rope (N) under the load will be: twice the number of ropes used, for 2:1 roping; three times the number of ropes used, for 3:1 roping, etc.

Table 5
Minimum Factors of Safety for Suspension Wire Ropes

| *Rope Speed (feet per minute)* | *Minimum Factor of Safety* |
|---|---|
| 50 | 7.60 |
| 75 | 7.75 |
| 100 | 7.95 |
| 125 | 8.10 |
| 150 | 8.25 |
| 175 | 8.40 |
| 200 | 8.60 |
| 225 | 8.75 |
| 250 | 8.90 |
| 300 | 9.20 |
| 350 | 9.50 |
| 400 | 9.75 |
| 450 | 10.00 |
| 500 | 10.25 |
| 550 | 10.45 |
| 600 | 10.70 |

(d) Minimum Number and Diameter of Ropes.

The minimum number of hoisting ropes used shall be three for traction hoists and two for drum type hoists.

Where a car counterweight is used, the number of counterweight ropes used shall be not less than two.

The term "diameter," where used in Section 1604.25, shall refer to the nominal diameter as given by the rope manufacturer.

The minimum diameter of hoisting and counterweight ropes shall be 1/2–inch.

(e) Rope Equalizers.

Suspension rope equalizers may be used.

(f) Securing Ropes to Winding Drums.

Car suspension ropes of winding–drum machines shall have the ends of the rope secured to the drum or drum flange by means of clamps or tapered sockets or by other means approved by the enforcing authorities.

(g) Spare Rope Turns on Winding Drums.

Wire suspension ropes of drum type machines shall have not less than three wraps of the rope on the drum when the car is resting on the fully compressed buffers.

(h) Splicing Rope.

Suspension wire ropes shall not be lengthened or repaired by splicing.

(i) Rope Fastenings.

(1) Type of Rope Fastening.

Hoisting and counterweight wire ropes shall be attached to cars and counterweights by means of zinc–coated or galvanized drop forged fist grips or equal and wire rope thimbles, or by approved special fastening devices. When fist grips are used, the minimum number, spacing, and tightening torque shall be in accordance with the instructions of the grip manufacturer. Grips shall be periodically checked and retightened to the recommended torque.

When extra wire rope is carried on top of the frame of the hoisting platform, a drum and clamp tie down or equivalent type anchor device, which will not damage or deform the wire rope, shall be used.

(2) Babbitted Rope Sockets.

Babbitted rope sockets shall be prohibited except on permanent passenger or freight elevators which are temporarily being used as construction personnel hoists.

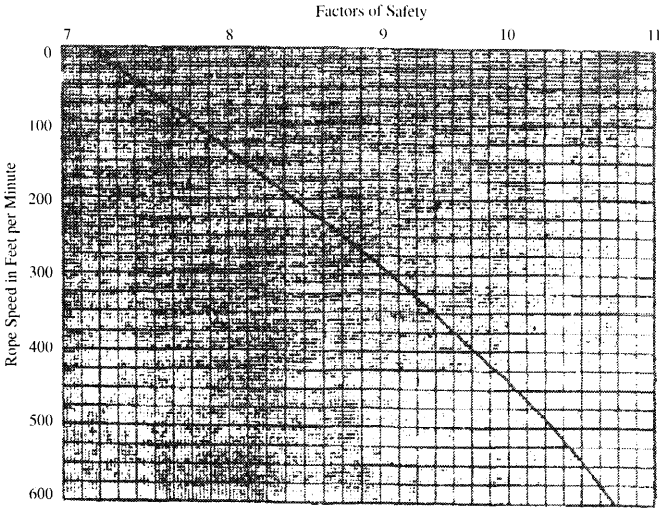



Fig. 5
Factors of Safety of Suspension
Wire Ropes of Personnel Hoists

(j) Rope Inspection.

(1) A representative of the user of the personnel hoist shall be appointed, and this representative shall keep written records of the rope condition on file at the work site.

(2) Inspection periods shall be established for each hoist installation, with the frequency of inspection determined by the type of installation and operating conditions. Inspection shall be made at least once each 30 days.

(3) If ropes are dirty or over–lubricated, a proper inspection may not be possible unless the dirt or excess lubricant is removed.

(4) Examination of traction machine ropes and counterweight ropes of drum type hoists should preferably start with the car located at the top of the hoistway and should be made from the top of the car, with the ropes examined on the counterweight side.

(5) The hoist ropes of overhead drum type machines must be examined from the overhead machinery space.

(6) Where a traction or drum machine is located below, the portions of the ropes leading from the driving machine drum or sheave and from the counterweight to the overhead sheaves can be examined from the top of the car as it descends, except for a small portion which must be examined from the pit.

(7) The rope should be marked with chalk to indicate location of unexamined sections which must be inspected from other locations such as the pit or overhead machinery space.

(8) Sheaves, guards, guides, drums, flanges, and other surfaces contacted by wire rope during operation should be examined at the time of inspection. Any condition harmful to the rope shall be corrected.

(k) Rope Replacement.

If one wire rope of a set requires replacement, the entire set of ropes shall be replaced. Wire rope shall be removed or replaced immediately if it has one or more of the following defects:

(1) Severe corrosion. (Any development of slight corrosion should be noted and watched closely.)

(2) One or more valley breaks. (A valley break is a wire break occurring in the valley between two adjacent strands.)

(3) Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay. (A rope lay is the length along the rope in which one strand makes a complete revolution around the rope.)

(4) Development of broken wires in the vicinity of attachments. If this condition is localized in an operating rope and the section in question can be eliminated by making a new attachment, this may be done rather than replacing the entire rope.

(5) Abrasion, scrubbing, flattening, or peening causing loss of more than one–third of the original diameter of the outside wires.

(6) Severe kinking, crushing, birdcaging, or other damage resulting in distortion of the rope structure.

(7) Evidence of any heat damage resulting from a torch or any caused by contact with electrical wires.

(8) Reduction from nominal diameter of more than 3/64–inch for diameters up to and including 3/4–inch, 1/16–inch for diameters 7/8 to 1 1/8 inches, and 3/32–inch for diameters 1 1/4 to 1 1/2 inches. Marked reduction in diameter indicates deterioration of the core.

Governor ropes shall be replaced on the same basis as hoisting ropes. (These ropes are lightly loaded and may show little or no wear. Inspectors should check for fatigued wires in strand valleys by bending over a small radius.)

### § 1604.26. Inspection, Tests and Operation of Personnel Hoists.

(a) Acceptance Inspections and Tests of New Installations and Alterations. In order to ensure the safe operation of new hoists, such devices shall, on their completion and before being placed in service, be subjected to an acceptance inspection and tests in the field to determine that all parts of the installation conform to the applicable requirements of this Standard and that all safety equipment functions as required. A similar inspection and test shall be made following a major alteration of an existing installation and at any time the hoist is moved to a new location. (A jump of the tower after initial installation shall not be considered a major alteration.) Records shall be maintained and kept on file at the job site for the duration of the job.

(1) Persons Authorized to Make Acceptance Inspections and Tests. Inspections shall be made by a representative of the Division of Industrial Safety. The following tests shall be performed by the person or firm installing or altering the equipment in the presence of the Division representative.

(A) Acceptance tests for car and counterweight safeties and governors.

(B) Acceptance tests for oil buffers.

(C) Any tests which require rendering of any safety device or equipment inoperative or which require removal or resetting of devices or equipment.

(2) Acceptance Inspection Requirements. All parts of the installation shall be inspected for conformity with the applicable requirements of these Safety Orders.

(3) Acceptance Test for Safeties. Car safeties shall be tested with rated load in the car. Counterweight safeties, where provided, shall be tested with no load in the car.

(4) Acceptance Test for Governors. Governor–tripping speed shall be measured and the operation of the governor overspeed switch and safety mechanism switch inspected.

(5) Acceptance Test for Oil Buffers. Oil buffers under the car shall be tested with a rated load on the car traveling at rated speed. Oil buffers under the counterweight shall be tested with no load on the car and the counterweight traveling at rated speed.

(b) Periodic Inspections and Tests. All existing installations, and all new installations after being placed in service, shall be subjected to periodic inspections and tests at regular intervals of not more than 3 months for construction hoists and not more than one week for bridge construction elevators to determine that the equipment is in safe operating condition and has not been altered. All parts subject to wear shall be inspected and those worn to such an extent as to affect the safe operation of the installation shall be adjusted or replaced. Whenever the hoisting equipment installed on bridges is exposed to winds exceeding 35 miles per hour, it shall be inspected and put into operable condition before use. The em-

ployer shall prepare a certification record which includes the date the inspection and test of all functions and safety devices was performed; the signature of the person who performed the inspection and test; and a serial number or other identifier for the hoist that was inspected and tested. The most recent certification record shall be maintained on file at the job site.

(1) Periodic Inspections. Periodic inspections and tests as recommended by the hoist manufacturer shall be performed by a person designated by the employer and qualified to perform such service. Records shall be maintained and kept on file at the job site for the duration of the job.

(c) Operation. Hoists shall be operated only by a competent authorized operator, in the car, or stationed adjacent to the driving machine subject to the following conditions:

(1) A regular attendant is stationed in the car.

(2) A constant-pressure-type switch shall be provided in the car, which must be held manually in the closed position by the attendant in the car in order to permit operation of the driving machine and which shall be opened automatically when released by the operator during normal or emergency stop operations.

(3) A means of closed voice communication shall be provided between the car attendant and the operator stationed adjacent to the driving machine.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (b) filed 4-19-90; operative 5-19-90 (Register 90, No. 19). For prior history, see Register 75, No. 46.
2. Amendment of section heading filed 7-17-2008; operative 8-16-2008 (Register 2008, No. 29).

### § 1604.27. Maintenance.

(a) Lubrication.

All parts of the machinery and equipment requiring lubrication shall be lubricated at regular intervals as recommended by the manufacturer, and a log maintained.

(b) Making Safety Devices Inoperative.

No person shall at any time make any required safety device or electrical protective device inoperative, except where necessary during tests, inspections, and maintenance. Immediately upon completion of such tests, inspections, and maintenance, such devices shall be restored to their normal operating condition in conformance with the applicable requirements of this Standard.

### § 1604.28. Use of Hoists for Carrying Materials.

(a) Personnel hoists may be used for carrying materials provided the hoists are designed and installed for the type of loading to be used.

(b) Only the operator and personnel necessary to load and unload materials being hoisted shall be allowed in the personnel hoist when it is being used primarily to hoist materials.

### § 1604.29. Permit to Operate.

(a) After inspection of each new personnel hoist by an authorized representative of the Division, a permit to operate shall be issued before the device is placed in service, except that the hoist may be placed in service while the permit to operate is being processed if, in the opinion of the inspecting representative of the Division, the hoist is safe to operate.

(b) Inspection fees to cover the cost to the Division of making the inspection shall be charged as follows:

| New Inspection | |
|---|---|
| 4 to 8 landings | $25.00 |
| 9 to 15 landings | $30.00 |
| 16 to 21 landings | $35.00 |
| over 21 landings | $40.00 |

(c) After completion of such requirements as may be necessary in the opinion of the Division to comply with these regulations and upon payment of the inspection fee, a permit to operate will be issued and shall be posted in a conspicuous location in the car.

The permit shall be in effect for one year or for the length of time the personnel hoist is at the same location except that the permit may be revoked if periodic inspections and tests show the hoist to be in an unsafe condition.

No personnel hoist shall be operated without a valid permit except as permitted by Section 1604.29(a).

### § 1604.30. Revision of American National Standards Referred to in This Document.

(a) When the following American National Standards referred to in this document are superseded by a revision approved by the American National Standards Institute, Inc., the revision shall apply:

(1) American National Standard Building Code Requirements for Reinforced Concrete, A89.1-1972 (ACI 318-71).

(2) American National Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates of Structural Quality, G24.2-1972 (ASTM A283-70a).

(3) American National Standard Specification for Quenched and Tempered Alloy Steel Bolts or Structural Steel Joints, G24.19-1972 (ASTM A490-71).

(4) American National Standard Specification for Low Carbon Steel Externally and Internally Threaded Standard Fasteners, G28.5-1969 (ASTM A307.68).

(5) American National Standard Specification for High-Strength Bolts for Structural Steel Joints, including Suitable Nuts and Plain Hardened Washers, G38.6-1972 (ASTM A325-71a).

(6) American National Standard Specification for Structural Steel, G41.5-1970 (ASTM A325-69).

(7) American National Standard Specification for Steel Structural Rivets, G42.2-1968 (ASTM A502.65).

(8) American National Standard Specification for Mild to Medium Strength Carbon Steel Castings for General Application, G50.1-1972 (ASTM A27-71).

(9) American National Standard Specification for Carbon Steel Forgings for General Industrial Use, G55.20-1969 (ASTM A235-67).

(10) American National Standard Methods of Static Tests of Timbers in Structural Sizes, 04.2-1969 (ASTM D198-67).

(11) American National Standard Methods for Establishing Structural Grades for Visually Graded Lumber, 04.3-1969 (ASTM D245-68T).

(12) American National Standard Safety in Welding and Cutting, Z49.1-1973.

### § 1605. Construction Material Hoists.

Construction material hoists shall comply with Sections 1605.1 through 1605.21.

### § 1605.1. General Requirements.

The employer shall comply with the manufacturer's specifications and limitations applicable to the operation of all hoists and elevators. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a professional engineer competent in the field.

### § 1605.2. References to Other Codes.

These Safety Orders are supplemented by the following Subchapters of Title 8 of the California Administrative Code.

(a) Construction Safety Orders, Subchapter 4

(b) General Industry Safety Orders, Subchapter 7

(c) Electrical Safety Orders, Subchapter 5

### § 1605.3. Requirements for Hoisting Towers.

(a) Material hoist towers shall be constructed of structural steel, steel pipe, wrought iron, or other equivalent.

(b) All sheaves, guy ties, bolt connections, miscellaneous clamps, braces, and similar parts shall be regularly inspected after the installation is initially placed in operation, and at least once each month thereafter. All broken, defective, and worn parts shall be replaced or repaired.

(c) Hoist–operating rules shall be established and posted in conspicuous locations adjacent of the hoist to the operator's station and the structure it serves. The operating rules shall include the following:

(1) A signal system.

(2) Provision for authorized riding on the hoist platform for the purpose of inspection and servicing only.

(3) Acceptable safe procedures for loading and unloading cages, platforms, and buckets.

(4) Operating procedures including allowable line speed for various loads.

(5) A sign on the car frame reading "No Riders Allowed."

(d) All material hoist towers shall be designed by licensed professional engineers.

### § 1605.4. Foundations.

(a) Hoist–tower foundations shall be constructed to safely support the intended tower live and dead loads, and shall not exceed the safe bearing capacity of the ground or floor upon which they rest.

### § 1605.5. Erection.

(a) Personnel engaged in the erection, maintenance, and dismantling of a material hoist shall be provided with and required to use such appropriate personal protective devices as set forth in these Orders.

(b) Hoist towers shall be vertically straight.

(c) Hoist towers shall be electrically grounded.

(d) The guide rails of hoists shall be of steel securely fastened, and shall deflect no more than 1/4–inch under normal operation.

(e) Hoist towers may be used with or without an enclosure on all sides. However, whichever alternate is chosen, the following conditions applicable to either, must be met:

(1) When a hoist tower is enclosed it shall be enclosed on all sides for its entire height with a wire–screen enclosure of not less than No. 18 U. S. Standard gage wire or equivalent material, with openings not exceeding 1/2–inch mesh, securely fastened to the tower structure, with openings formed onto each landing.

(2) When a hoist tower is not enclosed, the hoist platform or car shall be totally enclosed (caged) on all sides, including the roof, for the full height between the floor and the cage top. The walls of the cage shall be constructed of 1/2–inch mesh of No. 14 U. S. Standard gage wire or equivalent. The hoist–platform enclosure shall include the required gates for loading and unloading.

(f) All entrances to hoistways shall be protected by substantial gates or bars which shall guard the full width of the landing entrance.

(1) Gates shall be not less than 66 inches in height and located not more than 4 inches from the hoistway line with a maximum under–clearance of 2 inches. Gates of grille or lattice or other open work shall have openings of not more than 2 inches.

(2) Bars shall be not less than 2 by 4–inch wooden bars or the equivalent, located 2 feet from the hoistway line. Bars shall be located not less than 36 inches nor more than 42 inches above the floor.

(3) Gates or bars protecting the entrances to hoistway shall be equipped with a latching device. Material hoists serving structures over 70 feet in height, or where the hoist landing platforms are not clearly visible to the hoist operator, shall be equipped with a telephone system or an electrical system or both, to assure that all gates or bars are closed before the hoist platform can be moved.

(g) Hoist towers shall be erected to a height necessary for immediate needs. However, the tower shall not be extended in height beyond the designer's recommendations and never more than 66 feet above the last (highest) guy point.

(h) An enclosure of No. 18 U. S. Standard gage wire mesh or equivalent material, which will reject a one–inch steel ball, shall be provided to prevent access into the space at the bottom of the hoist tower. The enclosure shall extend not less than 6 feet above the base of the hoist tower.

(i) Positive connections, such as those made with bolts or pins, shall join the various segments from which assembled towers are made.

(j) Diagonal bracing, or the equivalent, shall be placed on each of the four sides of the tower and between horizontal crossties, except at loading platforms, in which case bracing of equivalent strength shall be provided.

(k) Hoist towers shall only be erected and dismantled under the direct supervision of competent personnel.

### § 1605.6. Guying.

(a) Towers shall be secured with guys or rigid braces at each corner at intervals not to exceed 30 feet vertically.

(b) Towers guys shall be at least 1/2–inch diameter improved plow–steel wire rope, secured to anchorages with wire–rope clips as specified in Table 5, or the equivalent. The wire–rope fastenings and the anchorages shall withstand four times the maximum intended loadings.

### § 1605.7. Cantilever Towers.

(a) The requirements outlined in 1605.5(j) of this Standard do not apply to cantilever towers.

(b) Cantilever towers shall be secured with guys or rigid braces, according to manufacturer's recommendation, at intervals not to exceed 30 feet vertically or the manufacturer's recommended spacing, whichever is the lesser.

(c) All other Sections of this Standard are applicable to cantilever towers.

### § 1605.8. Requirements for Inside Hoists.

(a) The sides of the hoistways not used for entrances shall be enclosed on each floor for their entire height with wire mesh or equivalent material and reinforced to withstand a horizontal force of 100 pounds per square foot, applied to any point. The openings in the mesh shall reject a one–inch steel ball.

(b) Protective covering of heavy planking shall be provided below the cathead of all hoists to prevent objects falling down the hoistway.

### § 1605.9. Hoist Platforms and Cages.

(a) Workmen shall be prohibited from riding the hoist platform except for authorized inspection and maintenance.

(b) When wheelbarrows or other rolling equipment are transported, they shall be held securely in place on the hoist platform.

(c) Overhead protective covering of two–inch planking, 3/4–inch plywood or other solid material of equivalent strength shall be provided on the top of every material hoist cage or platform to prevent objects falling on the workmen loading or unloading the hoist.

(d) The protective covering on the top of the cage or platform may be made in hinged sections that may be raised when hoisting long material.

(e) When using a cage or platform for long material, the several pieces of the material shall be securely fastened together and made fast to the cage or platform, so that no part of the load can fall or project beyond the sides of the cage or platform.

(f) Platform floors covered with metal, shall have a non–slip surface.

(g) When a hoist tower is not enclosed, the hoist platform or car shall be totally enclosed (caged) on all sides including the roof, for the full height between the floor and the cage top. The walls of the cage shall be constructed of 1/2–inch mesh of No. 14 U. S. Standard gage wire or the equivalent. The hoist–platform enclosure will include the required gates for loading and unloading.

(h) A stamped plate indicating the manufacturer's rated load of the hoist in pounds shall be conspicuously displayed in the hoist cage.

(i) Broken–rope safety devices, if and when used in conjunction with material platforms or concrete buckets, shall conform to the following conditions. However, under no circumstances shall they be construed to satisfy the requirements of Section 1604 of these Orders.

(1) The safety device when engaged shall be capable of stopping and holding the platform or bucket with its rated load.

(2) The safety device shall be securely attached to the frame of the platform, or bucket, in such manner that the platform, or bucket, will not be-

come separated from the safety device under the conditions cited in (1) above.

(3) Any platform, or bucket, used in conjunction with safety devices shall be capable of meeting the conditions cited in (1) above without resultant failures or loss of its load.

(4) Any material hoist structure including tower components, guide rails, and their attachments, and any parts affected by the action of the safety device, when subjected to the conditions cited in (1) above shall sustain the platform or bucket with its rated load without structural failure.

(5) The safety device shall be activated by a positive means in the event of rope failure, and when engaged shall be released only by raising the platform or bucket from the stopped position.

(6) The ability of the equipment to satisfy the requirements of (1) and (2) above, shall be established by tests witnessed by the enforcing author-

[The next page is 211.]

ity, an independent testing laboratory, or registered professional engineer.

### § 1605.10. Concrete Buckets.

(a) When employees are required to work in the pit, the bucket shall be shored on two sides with timbers, or their equivalent, of sufficient strength to support the bucket. Timbers shall not protrude into an adjacent hoistway.

(b) Employees shall be prohibited from riding the bucket.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of section and new NOTE filed 12–22–97; operative 1–21–98 (Register 97, No. 52).

### § 1605.11. Booms.

(a) All booms mounted on a material hoist tower shall operate at fixed radii.

(b) Live booms shall be prohibited.

### § 1605.12. Hoisting Wire Rope and Sheaves.

(a) Breaking Strength. All hoisting wire rope shall be of such breaking strength as to provide a minimum factor of safety of seven. The factor of safety (F) shall be calculated by the following formula:

$$F = \frac{SN}{W}$$

where

S = Manufacturer's rated breaking strength of one rope.

N = Number of parts of ropes under load.

W = Maximum static load imposed on all ropes with the platform, cage, or bucket, and its rated load at any position in the hoistway.

(b) Wire Rope Inspection.

(1) Inspector.

A representative of the user of the material hoist shall be appointed and this representative shall keep written reports of the rope condition on file at the work site. The representative shall have the authority to order wire rope replacements and keep unsafe wire rope from being used.

(2) Periods of Inspection.

Inspection periods shall be set–up for each material–hoist wire rope. The frequency of inspection shall be determined by consideration of environment, degree of hazard to materials, frequency of operation, and the frequency with which the rope is subjected to its capacity limits. Inspections shall be made not less often than once each 30 days.

(3) Method of Inspection.

The working length of the wire rope shall be unwound from the hoist drum. Thorough inspection shall be made of the rope sections that pass over sheaves, drums, or contact saddles, or which make opposing turns. The rope close to end attachments shall be carefully inspected.

(4) Inspection of Used Wire Rope.

A used wire rope shall be thoroughly inspected prior to installation.

(5) Inspection of Wire Rope on Idle Equipment.

The wire rope on equipment that has been idle or shutdown for a period of one month or more shall be completely inspected prior to operation.

(6) Surfaces Contacted by Wire Rope.

Sheaves, guards, guides, drums, flanges, and other surfaces contacted by wire rope during operation should be examined at the time of inspection. Any condition harmful to the rope in use at the time should be corrected.

(c) Wire Rope Removal and Replacement.

Wire rope with one or more of the following defects shall be removed or replaced immediately:

(1) Corrosion. Severe corrosion shall be cause for replacement. Any development of slight corrosion should be noted and watched closely.

(2) Broken Wires. One or more valley breaks shall be cause for replacement. (A valley break is a wire break occurring in the valley between two adjacent strands.)

Six randomly distributed broken wires in one rope lay, or three broken wires in one strand in one rope lay, shall be cause for replacement. (A rope lay is the length along the rope in which one strand makes a complete revolution around the rope.)

(3) End Attachments. Development of broken wires in the vicinity of attachments shall be cause for replacement. If this condition is localized in an operating rope and the section in question can be eliminated by making a new attachment, this can be done rather than replacing the entire rope.

(4) Abrasion. Abrasion, scrubbing, flattening, or peening causing loss of more than one–third of the original diameter of the outside wires shall be cause for replacement.

(5) Kinking. Severe kinking, crushing, birdcaging, or other damage resulting in distortion of the rope structure shall be cause for replacement.

(6) Heat. Evidence of any heat damage resulting from a torch, or any caused by contact with electrical wires shall be cause for replacement.

(7) Reduction of Rope Diameter. Reduction from nominal diameter of more than 3/64–inch for diameters up to and including 3/4–inch; 1/16–inch for diameters 7/8 to 1 1/8 inches; and 3/22–inch for diameter 1 1/4 to 1 1/2 inches shall be causes for replacement. Marked reduction in diameter indicates deterioration of the core.

(d) Wire Rope Installation. Hoisting ropes shall be installed in accordance with the wire rope manufacturer's recommendations. The hoisting ropes shall be secured to the drum by clamps or by an approved equivalent means.

(e) Drums and Sheaves.

(1) Pitch diameters of drums shall be a minimum of 24 times the nominal rope diameter. The drum flange shall extend at least 2 inches radially beyond the last layer of rope when all rope is coiled on the drum.

(2) The winding drum shall have not less than three turns of rope when the platform, cage, or bucket is at the lowest point of travel.

(3) All hoisting wire rope shall be improved plow steel grade or stronger, and equal in flexibility to 6 x 19 classification wire rope. The joining of hoisting ropes by splicing is prohibited.

(4) There shall be at least 4 feet of clearance between the cathead sheave and the hoisting–rope fastening on the platform, cage, or bucket when either is at the uppermost terminal or landing.

(5) The arc of the bottom of the sheave groove shall be smooth and concentric with the bore or shaft of the sheave. The center line of the groove shall be in a plane perpendicular to the axis of the bore or shaft of the above sheave.

(6) Sheave grooves shall be machined or cast, providing the bottom of the groove has a radius subtending an arc of 150 degrees and conforms to Table 1.

Table 1
Groove Radii for New and Reconditioned Sheave Grooves

| *Wire Rope, Nominal Diameter* | *Groove Minimum* | *Root Radius Maximum—* |
|---|---|---|
| 1/4 | .140 | .150 |
| 5/16 | .170 | .180 |
| 3/8 | .205 | .215 |
| 1/2 | .265 | .275 |
| 5/8 | .330 | .340 |
| 3/4 | .390 | .400 |
| 7/8 | .460 | .475 |
| 1 | .525 | .540 |
| 1 1/8 | .585 | .600 |
| 1 1/4 | .655 | .670 |

(7) Load–bearing sheaves for wire rope shall be grooved to accommodate the rope and shall have a diameter at least 20 times that of the wire rope. For minimum tread diameter of sheaves see Table 2. (The diameter of a sheave is measured at the bottom of the grooves.)

(8) Sheaves intended for use with fiber rope shall not be used with wire rope.

(9) Defective and worn sheaves that may cause equipment failure or damage to the wire rope shall be replaced. If pillow blocks are used, they shall be mounted on top of beams and securely bolted. Open bearings shall not be used.

(10) No snatch blocks or hood–type sheaves shall be used on any hoist tower.

Table 2
Minimum Ratio of Rope Diameter to Sheave Tread Diameter

| *Diameter of Hoisting Rope (Inches)* | *Minimum Tread Diameter of Sheaves* (Inches)* |
|---|---|
| 1/4 | 5 |
| 5/16 | 6 1/2 |
| 3/8 | 7 1/2 |
| 1/2 | 10 |
| 5/8 | 12 1/2 |
| 3/4 | 15 |
| 7/8 | 17 1/2 |
| 1 | 20 |
| 1 1/8 | 22 1/2 |
| 1 1/4 | 25 |

* Based on 20 times rope diameter.

(11) All sheaves shall be of iron or steel.

(12) All sheave bearings shall be lined with babbit, or other equivalent bearing metal, or have ball or roller bearings.

(13) Sheave bearings shall be provided with adequate means for lubrication.

### § 1605.13. Wire Rope Fastenings.

(a) Hoisting ropes shall be attached by means of zinc–coated or galvanized drop forged fist grips or equal and wire rope thimbles, or by approved special fastening devices. When fist grips are used, the minimum number, spacing, and tightening torque shall be in accordance with the instructions of the grip manufacturer. Grips shall be periodically checked and retightened to the recommended torque.

(b) When extra wire rope is carried on top of the frame of the hoisting platform, a drum and clamp tie down or equivalent type anchor device, which will not damage the wire rope, shall be used.

### § 1605.14. Hoisting Machines.

(a) Hoisting machines shall be designed, installed, and maintained to vertically raise and lower the rated load plus the weight of equipment and ropes.

(b) The hoisting machine shall be equipped with brakes capable of stopping and holding 125 percent of rated hoisting capacity under all operating conditions.

(c) The hoisting machine shall be secured in position so as to prevent lateral movement, shifting, or dislodgement.

(d) The location and arrangement of the hoisting machine, tower, and related sheaves shall be such that proper wrapping of the wire rope on the drum will be assured to prevent "overriding," fouling, improper spacing, or any other condition which will cause damage to the wire rope or hoisting machine.

(e) Hoisting machines shall not be left unattended with the load suspended.

(f) Adequate blocking and bracing shall be provided between the hoisting machine and the tower to prevent the transmission of any unbalanced lateral forces to the tower resulting from the pull of the hoisting ropes.

(g) When hoisting machinery is set on an elevated platform, such platforms shall be of substantial construction, properly engineered, and provided with guardrails and toeboards which conform to these Orders.

(h) Wire hoisting ropes within 7 feet of floor or ground shall be guarded by an enclosure or fence.

(i) All gears on hoisting machines shall be completely guarded.

(j) Not more than one platform winch head, boom, or bucket shall be operated at the same time by any one hoisting machine.

(k) Brake drums shall be kept free of oil, grease, or any other substance which reduces their efficiency.

(l) Mechanical brakes shall be so installed as to stop movement of the winding drum, and equipped with a positive acting latch or other mechanical device, designed as part of the hoist, which will hold the brake in the engaged position.

(m) Each manually operated hoisting machine shall be equipped with an effective pawl and ratchet capable of holding the rated load capacity when it is suspended.

(n) Internal–combustion–engine exhaust pipes shall be arranged to exhaust away from workmen so the gases will be dissipated harmlessly. A muffler shall be installed to reduce the noise.

(o) Only approved safety cans shall be used for fueling internal–combustion engines. When gravity–type fuel systems are used, a cutoff valve shall be installed between the internal–combustion engine and the fuel–supply tank.

(p) Open light, flames, or spark–producing devices shall be kept at a safe distance while refueling internal–combustion engines, and no person shall smoke or carry lighted smoking materials in the immediate area. The engine shall be stopped during refueling.

(q) A fire extinguisher which meets the requirements of the General Industry Safety Orders shall be part of the hoisting equipment.

(r) The operation of every hoist shall be controlled by an electrically or mechanically designed signal system. Manual signals may only be used when visibility and distance permit, and the signals can be relayed directly to the hoist operator. See Section 1605.21 for recommended signal systems.

(s) The platform, cage, or bucket shall be brought to its lowest position, the hoisting machine shall be shutdown and positively secured against accidental start–up when men climb the hoist tower or work on any part of the tower below the cathead. The platform, cage, or bucket may be used to raise workmen for authorized maintenance and repairs that cannot be done otherwise.

(t) All hoisting equipment, including brakes, gears, levers, and wire rope, shall be visually inspected daily. All broken, worn, or defective parts shall be repaired or replaced when discovered.

(u) Electrical equipment shall be effectively grounded. Ground cables shall be enclosed or shielded as necessary, and shall be tagged for identification.

(v) Each automatically operated electrical–motor–driven hoist shall be provided with a mechanical automatic motor brake, or equivalent device, to hold the load automatically in case of power failure.

### § 1605.15. Protection of Operator.

(a) See Article 4, Construction Safety Orders for protection of operator from dust and airborne material.

(b) The operator station of a hoisting machine shall be provided with overhead protection equivalent to tight planking not less than 2 inches thick. The support for the overhead protection shall be of equal strength.

(c) The area occupied by the hoisting machine and its operator shall be protected from the elements and shall be heated in cold weather.

(d) No open–flame heaters shall be allowed inside any operator's enclosure. All other types shall be properly vented.

(e) Heating systems using liquefied petroleum gases shall be installed in compliance with the Unfired Pressure Vessel Safety Orders.

### § 1605.16. Signal Systems.

(a) Hoisting machines shall be operated in response to manual signals, telephone communications, or to a visible or audible code signal. Any of these may be used separately or in combination. Refer to Section 1605.21.

(b) Operators and signalmen shall be able to comprehend signals readily and to execute them properly. Refer to Section 1605.21.

### § 1605.17. Indicators.

Hoisting ropes shall be accurately marked, or equivalent means taken, to indicate when the load has reached specific positions, including top and bottom landings.

### § 1605.18. Electric Motors.

(a) Motor installations shall be made in accordance with provisions of applicable local codes and the Electrical Safety Orders.

(b) Only enclosed switches with grounded cases and fuses or circuit breakers shall be used.

(c) Control panels shall be enclosed and unauthorized persons shall not be permitted access to such panels.

(d) An emergency means shall be provided within reach of the operator to cutoff the electric power.

### § 1605.19. Landings and Runways.

(a) Landing platforms and runways that connect the hoistway or tower to the building shall be designed and constructed to sustain safely the maximum intended load. If floors or platforms are covered with metal, they shall have non–slip surfaces.

(b) Railings and toeboards which conform to these Orders shall be placed on the open sides of runways connecting the tower to the structure.

(c) All landing platforms where employees may be exposed to falling objects shall be provided with a solid overhead protection composed of 2–inch planking or the equivalent.

(d) A barricade shall be required at the building face which extends a minimum distance of 6 feet laterally along the outer edge of the building, from each side of the landing or runway. The barricade shall extend a minimum distance of 36 inches above the level of the landing, runway or structure floor. The material used for the barricade shall be the equivalent of No. 18 U. S. Standard gage wire with openings not exceeding 1/2–inch mesh or equivalent.

(e) Working platforms of ample size and strength, and railings and toeboards which conform to these Orders, shall be built at each level where employees are required to work, such as bucket dumps, hopper headers, and similar places.

(f) Access to and around landings and the area around the hoisting machine shall be kept clear of rubbish and waste material.

(g) Materials shall not be stored on landing platforms or landing runways.

(h) All hoistway entrance barriers and gates shall be painted with diagonal black and yellow stripes.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (c) and (e) and new NOTE filed 7–30–97; operative 8–29–97 (Register 97, No. 31).

### § 1605.20. Capacity Statement and Design.

(a) All material hoist towers, masts, etc., shall be substantially constructed and of such design that maximum intended loads will not stress any members beyond safe limits established by applicable engineering formulas.

(b) The design shall also provide ample strength for loads imposed by the use of booms attached to a tower or mast. Where auxiliary equipment or other load–bearing devices, in addition to that of the loaded platform or bucket, is supported by the tower, the tower shall be built to withstand these additional loads and stresses safely. The rated load, specified by the manufacturer, shall not be exceeded.

### § 1605.21. Introduction.

One or a combination of several types of signal systems may be used: manual signals, audible signals, or electrical signals. Whatever the system in use, a copy of the signals shall be posted in a conspicuous place on or near each landing and at the hoist operator's position. The height of the tower and the number of wells in the tower shall be the determining factor in selecting the type of signals for safe operation.

(a) One–Hand Signals to Hoist Operators.

(1) Hoist: Forearm vertical and forefinger pointing upward, move hand in small horizontal circle.

(2) Lower: Arm extended and palm down, move hand in small vertical circle.

(3) Stop: Arm extended horizontally and palm down, hold position rigidly.

(4) Emergency Stop: Both arms extended horizontally but move hands rapidly right and left.

(5) Dog Off Load: With forearms extended vertically, clasp and unclasp fists several times.

(b) Two–Hand Signals to Hoist Operators.

(1) Hoist: Hold both arms horizontal at sides, fully extended, move upward and return.

(2) Lower: Let arms hang at sides, fully extended, move out and return.

(3) Stop: Hold both arms horizontal at sides, fully extended; hold position rigidly.

(4) Emergency Stop: Hold both arms horizontal at sides, fully extended; move both arms rapidly from back to front.

(5) Dog Off Load: Clasp fingers of one hand with fingers of the other, palms facing each other.

(c) Audible Signals.

Audible signals shall not be used when there are surrounding noises of the same, or nearly the same, frequency and octave level. Signals given by means of a whistle, bell, horn, or other audible means are as follows:

(1) Hoist: Two short blasts or gongs.

(2) Lower: Three short blasts or gongs.

(3) Slow: Four long blasts or gongs.

(4) Stop: One short blast or gong.

(5) Emergency Stop: Series of short blasts or gongs.

(6) Dog Off Load: One long blast or gong.

(d) Electrical Signals.

An electrical signal system utilizing bells or lights may be used. A bell signal system that does not register landing calls shall use the signals indicated in the preceding paragraph to control movement of the platform or bucket. One of two types of light systems, either a general system or a specific call system, may be installed.

(1) General Light Systems.

The necessary light or lights shall be so located at the hoist operator's station that they are readily visible to him at all times. A call button must be installed at each landing. Control of the hoist platform or bucket is governed by the following light signals:

(A) Hoist: Two lights or two light flashes.

(B) Lower: Three lights or three light flashes.

(C) Stop: One light or one light flash.

(D) Emergency Stop: Series of light flashes.

(E) Dog Off Load: One long light or lighting of separate dog–off light.

(2) Specific Call Light Systems.

A light to indicate each floor landing shall be installed in the most visible position at the hoist operator's station. A call signal button shall be installed at each landing. When the platform or bucket is needed at a certain floor, the call signal button registers that location on the proper light at the operator's station. Signals for movement may be given by audible or visible means.

(e) Electrical Intercommunication Systems.

(1) Electrical intercommunication systems may be installed. The wiring for such systems shall comply with the pertinent provisions of the Electrical Safety Orders.

(2) Speakers shall be so located at the hoist operator's position that he can communicate with all stations. A speaker shall also be located at each landing so that communication can be maintained with the hoist operator.

(3) Mechanical and electrical signal systems shall be inspected daily. Excessively worn or damaged parts shall be replaced immediately.

(4) All wires, cords, or other devices used in connection with signal systems shall be protected against unauthorized or unintentional use, breakage, or interference.

## Article 15. Hoisting

### § 1610. Operator.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of Article 15 (Sections 1610–1618) and new Article 15 (Sections 1610–1616) filed 12–8–72 (Register 72, No. 50). For prior history, see Register 70, No. 48.
2. Amendment of subsection (b) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
3. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1611. Hoisting Operations.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsection (f) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1612. Construction Hoisting Signals.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1613. Mobile Towers, Hoists, and Similar Equipment.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1614. Mast Towers and Hoists.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615. Limit Device.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.1. Brakes.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.2. Hoist Trolley Frames.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.3. Capacity Marking.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.4. Stops.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.5. Control Equipment.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.6. Warning Device.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.7. Hoisting Chains, Ropes, and Slings.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.8. Defective Hoist or Sling Hooks, Rings, and Chain Links.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.9. Rope Safety Factors for Boom–Type Mobile Cranes.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.10. Ropes.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1615.11. Hoisting Rope Guards (Hoists).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1616. Tramways.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

## Article 16. Railings

NOTE: For permanent guardrails see Section 3209 of the General Industry Safety Orders.

### § 1620. Design and Construction of Railings.

Railings required by these Orders, except as otherwise provided, shall conform to the following standards:

(a) Railings shall be constructed of wood or in an equally substantial manner from other materials, and shall consist of the following:

(1) A top rail not less than 42 inches or more than 45 inches in height measured from the upper surface of the top rail to the floor, platform, runway or ramp.

(2) A mid–rail shall be halfway between the top rail and the floor, platform, runway or ramp when there is no wall or parapet wall at least 21 inches (53 cm) high.

(A) Screens, mesh, intermediate vertical members, solid panels or equivalent members, may be used in lieu of a mid–rail subject to the following:

1. Screens and mesh, when used, shall extend from the top rail to the floor, platform, runway or ramp and along the entire opening between top rail supports.

2. Intermediate vertical members (such as balusters), when used between posts, shall be installed such that there are no openings greater than 19 inches (48 cm) wide.

3. Other intermediate members (such as solid panels, or equivalent members) shall be installed such that there are no openings that are more than 19 inches (.5 m) wide.

(b) Wood railings.

(1) "Selected lumber" (see definitions), free from damage that affects its strength, shall be used for railings constructed of wood.

(2) Wood posts shall be not less than 2 inches by 4 inches in cross section, spaced at 8–foot or closer intervals.

(3) Wood top railings shall be smooth and of 2–inch by 4–inch or larger material. Double, 1–inch by 4–inch members may be used for this purpose, provided that one member is fastened in a flat position on top of the posts and the other fastened in an edge–up position to the inside of the posts and the side of the top member. Mid–rails shall be of at least 1–inch by 6–inch material.

(4) The rails shall be placed on that side of the post which will afford the greatest support and protection.

(c) All railings, including their connections and anchorage, shall be capable of withstanding without failure, a force of at least 200 pounds applied to the top rail within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.

(1) When the 200 pound test load is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working level.

(d) Mid–rails, screens, mesh, intermediate vertical members, solid panels, and equivalent members shall be capable of withstanding, without failure, a force of at least 150 pounds (666 N) applied in any downward or outward direction at any point along the mid–rail, screen, mesh, or other intermediate member.

(e) Railings exposed to heavy stresses from employees trucking or handling materials shall be provided additional strength by the use of heavier stock, closer spacing of posts, bracing, or by other means.

(f) The ends of the rails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard.

(g) Railings shall be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.

(h) Steel banding and plastic banding shall not be used as top rails or mid–rails.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of subsection (d) and renumbering of subsections (e)–(i) to subsections (d)–(h) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12). For prior history, see Register 76, No. 41.
2. Amendment of subsection (c) filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).
3. New subsection (i) filed 6–1–92; operative 7–1–92 (Register 92, No. 23).
4. Editorial correction reinstating inadvertently omitted subsection (e) (Register 98, No. 25).
5. Amendment of article heading, section heading and section filed 4–20–2007; operative 5–20–2007 (Register 2007, No. 16).
6. Editorial correction of subsection (c)(1) (Register 2007, No. 44).

### § 1621. Railings and Toeboards.

(a) Unless otherwise protected, railings as set forth in Section 1620 shall be provided along all unprotected and open sides, edges and ends of all built–up scaffolds, runways, ramps, rolling scaffolds, elevated platforms, surfaces, wall openings, or other elevations 7 1/2 feet or more above the ground, floor, or level underneath.

EXCEPTIONS:

(1) Float and ladder jack scaffolds.

(2) Bricklayers' and masons' scaffolds used in accordance with Sections 1641(e) and 1644(a)(6).

(3) During demolition on the floor or surface being demolished.

(b) A standard toeboard shall be 4 inches (nominal) minimum in vertical height from its top edge to the level of the floor, platform, runway, or ramp. It shall be securely fastened in place and have not more than 1/4–inch clearance above floor level. It may be made of any substantial material, either solid, or with openings not over one inch in greatest dimension. Toeboards shall be provided on all open sides and ends of railed scaffolds at locations where persons are required to work or pass under the scaffold and at all interior floor, roof, and shaft openings.

NOTE: Except for structural steel crafts.

(c) Where material is piled to such height that a standard toeboard does not provide protection, paneling or screening from floor to intermediate rail or top rail shall be provided. Where such paneling or screening extend to the toprail, midrails may be omitted.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment of subsection (a) filed 9–5–79; effective thirtieth day thereafter (Register 79, No. 36).
3. Amendment of subsection (a) filed 3–7–80; effective thirtieth day thereafter (Register 80, No. 10).
4. Amendment of subsections (b) and (c) filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).
5. Change without regulatory effect amending subsection (a) filed 7–17–91 pursuant to section 100, title 1, California Code of Regulations (Register 91, No. 50).
6. Amendment of subsection (a) filed 7–30–97; operative 8–29–97 (Register 97, No. 31).

## Article 17. Ramps, Runways, Stairwells, and Stairs

### § 1623. Wheelbarrow Runways.

Ramps or runways over three feet high, used for wheelbarrows, shall be not less than two feet, six inches wide and secured at each end to prevent ramp from sliding. Platform planks shall be firmly cleated together.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment and renumbering of Section 1625 filed 2–11–72; effective thirtieth day thereafter (Register 72, No. 7).
2. Amendment filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
3. Editorial Correction (Register 81, No. 12).
4. Amendment filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).

### § 1624. Runways for Foot Traffic.

(a) Except as provided elsewhere, ramps or runways erected for the use of workmen shall be not less than 20 inches in width, and shall be secured and supported so as to avoid deflection and springing action.

(b) Securely fastened cleats or other means shall be used on inclined runways sloped two feet in 10 feet or more to improve the footing. Where cleats are used, they shall be eight inches or more in length and not more than 16 inches apart.

(c) When planks are used for raised walkways, runways, or sidewalks, they shall be secured against displacement. Planks shall be uniform in thickness and all exposed ends shall be provided with beveled cleats to prevent tripping.

EXCEPTION: The use of beveled cleats on scaffold platforms is not required.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment and renumbering of Section 1626 filed 2–11–72; effective thirtieth day thereafter (Register 72, No. 7).
2. Amendment filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
3. Repealer and new subsection (c) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
4. Amendment of subsection (b) filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).

### § 1625. Powered Buggy Runways.

Ramps or runways erected for the use of power–driven concrete buggies shall be capable of supporting at least four times the maximum load to be imposed. Curbs of four inch by four inch lumber, or a member of similar size made from laminated two inch by four inch members, shall be securely fastened on the runway edges. Such runways shall be at least five feet wide between the curbs and, where necessary, shall provide turn–outs sufficiently wider to permit safe meeting or passing of buggies.

NOTE: See Plate B-17, Appendix, for required slope of ramps; and Article 29, Section 1717 (a)(2) for design load requirements.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment and renumbering of Section 1627 filed 2-11-72; effective thirtieth day thereafter (Register 72, No. 7).
2. Amendment filed 1-14-86; effective thirtieth day thereafter (Register 86, No. 3).

### § 1626. Stairwells and Stairs.

(a) General.

(1) Stairways shall be al least 24 inches in width and shall be equipped with stair rails, handrails, treads, and landings.

(2) Railings and toeboards meeting the requirements of Article 16 of these safety orders shall be installed around stairwells.

(b) The following requirements apply to all stairways as indicated:

(1) Temporary stairways that will not be a permanent part of the structure on which construction work is being performed shall be at least 24 inches in width. The stairway shall have landings at each floor, or level, of not less than 30 inches in the direction of travel and extend at least 24 inches in width at every 12 feet or less of vertical rise.

(2) Stairs shall be installed between 30° and 50° from horizontal.

(3) Riser height and tread depth shall be uniform within each flight of stairs, including any foundation structure used as one or more treads of the stairs. Variations in riser height or tread depth shall not be over 1/4-inch (0.6 cm) on any stairway.

(4) Where doors or gates open directly on a stairway, a platform shall be provided, and the swing of the door shall not reduce the effective width of the platform to less than 20 inches (51 cm).

(5) Unprotected sides and edges of stairway landings shall be provided with railings. Design criteria for railings are prescribed in Section 1620 of these safety orders.

(6) Metal pan landings and metal pan treads, when used, shall be secured in place before filling with concrete or other material.

(7) All parts of stairways shall be free of hazardous projections, such as protruding nails.

(8) Slippery conditions on a stairway shall be eliminated before the stairway is used to reach another level.

(c) Stair rails and handrails. The following requirements apply to all stairways as indicated:

(1) Stairways having four or more risers or rising more than 30 inches (76 cm), whichever is less, shall be equipped with:

(A) At least one handrail; and

(B) A stair rail consisting of a top rail and mid-rail along each unprotected side or edge.

(2) Winding and spiral stairways shall be equipped with a handrail offset sufficiently to prevent walking on those portions of the stairways where the tread width is less than 6 inches (15 cm).

(3) The height of stair rails shall be not less than 34 inches nor more than 38 inches from the upper surface of the stair rail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

(4) Mid-rails shall be located at a height midway between the top edge of the stair rail and the stairway steps.

(A) Screens, mesh, or other material, when used in lieu of mid-rails, shall extend from the top rail to the stairway step, and along the entire opening between top rail supports.

(B) Other structural members, when used, shall be installed such that there are no openings in the stair rail that are more than 18 inches (46 cm) wide.

(5) Handrails and the top rails of stair rails shall be capable of withstanding, without failure, a force of at least 200 pounds (890 n) applied within 2 inches (5 cm) of the top edge, in any downward or outward direction, at any point along the top edge.

(6) The height of handrails shall be not less than 34 inches nor more than 38 inches from the upper surface of the handrail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

(7) When the top edge of a stair rail also serves as a handrail, the height of the top edge shall be not less than 34 inches nor more than 38 inches from the upper surface of the stair rail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

(8) Stair rails and handrails shall be so surfaced as to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.

(9) Handrails shall provide an adequate handhold.

(10) The ends of stair rails, handrails and mid-rails shall be constructed so as not to constitute a projection hazard.

(11) Handrails that will not be a permanent part of the structure being built shall have a minimum clearance of 3 inches (8 cm) between the handrail and walls, stair rails, and other objects.

(d) Temporary Service. The following requirements apply to all stairways as indicated:

(1) Except during stairway construction, foot traffic is prohibited on stairways with pan stairs where the treads and/or landings are to be filled in with concrete or other material at a later date, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan.

(2) Except during stairway construction, foot traffic is prohibited on skeleton metal stairs where permanent treads and/or landings are to be installed at a later date, unless the stairs are fitted with secured temporary treads and landings long enough to cover the entire tread and/or landing area.

(3) Treads for temporary service shall be made of wood or other solid material, shall cover the full width and depth of the stair and shall be supported to prevent undue deflection.

(4) Temporary treads and landings shall be replaced when worn below the level of the top edge of the pan.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 2-11-72; effective thirtieth day thereafter; former Section 1626 renumbered Section 1624 (Register 72, No. 7).
2. Repealer of subsection (g) and new subsections (g) and (h) filed 5-21-75; effective thirtieth day thereafter (Register 75, No. 21).
3. Amendment of subsection (c) filed 11-14-75; effective thirtieth day thereafter (Register 75, No. 46).
4. Repealer and new subsections (f) and (g) filed 3-19-79; effective thirtieth day thereafter (Register 79, No. 12).
5. Amendment of subsection (a) filed 4-3-2002; operative 5-3-2002 (Register 2002, No. 14).
6. Repealer and new section filed 4-20-2007; operative 5-20-2007 (Register 2007, No. 16).

## Article 18. Access and Egress

### § 1629. Stairways and Ladders.

(a) General.

(1) In all buildings or structures 2 or more stories or 24 feet or more in height or depth, suitable permanent or temporary stairways shall be installed as required in Section 1629(b).

EXCEPTION: At those locations where unusual site conditions prevail, an alternate effective means of access acceptable to the Division may be afforded.

(2) For the purpose of this Section, scaffolds shall not be considered to be structures.

(3) Stairways, ramps or ladders shall be provided at all points where a break in elevation of 18 inches or more occurs in a frequently traveled passageway, entry or exit.

(4) A minimum of 1 stairway shall be provided for access and exit for buildings and structures to 3 stories or 36 feet; if more than 3 stories or 36 feet, 2 or more stairways shall be provided.

(A) When a building or structure has only one stairway between levels, that stairway shall be kept clear to permit free passage of employees.

(B) Where two or more stairways are provided and work is being performed in the stairways, at least one stairway shall be maintained clear for access between levels at all times.

NOTE: For stairway access at demolition projects, refer to Article 31 of these safety orders.

EXCEPTION for subsection (a)(4):

1. At those locations where unusual site conditions prevail, an alternate effective means of access acceptable to the Division may be afforded.

(5) Stairways shall conform to the criteria shown in Plate B–17, Appendix and Article 17 of these safety orders.

(6) Spiral stairways that are not part of the permanent structure shall not be used.

(7) Sufficient illumination on all stairways, providing at least five (5) foot–candles of light on the steps, shall be maintained. All lamps providing stairway illumination shall be substantially guarded either physically or by location.

(b) Buildings.

(1) Wood Frame Buildings.

(A) The stairway to a second or higher floor shall be completed before studs are raised to support the next higher floor.

(B) Cleats shall not be nailed to studs to provide access to and egress from roof or other work areas.

(2) Steel Frame Buildings. Stairways shall extend to the uppermost floor that has been planked or decked. Ladders may be used above that point.

(3) Reinforced Concrete or Composite Steel—Concrete Buildings. Stairways shall extend to the lowermost floor upon which a complete vertical shoring system is in place. A minimum of two ladders at different locations for each floor may be used above this floor but not to exceed three floors.

(4) Roof and attic work areas of all buildings shall be provided with a safe means of access and egress, such as stairways, ramps or ladders that conform to the provisions of Article 25 of these safety orders.

(c) Ladder Use.

(1) Single cleat ladders shall not exceed 30 feet in length.

(2) Where ladders are allowed as primary access or exit as in (b) above from a working area for 25 or more employees, or simultaneous two–way traffic is expected, double cleat ladders shall be installed. Double cleat ladders shall not exceed 24 feet in length.

(3) Side rails of all ladders shall extend at least 3 feet above the landing or level they serve.

(4) Ladders and their use shall also conform to Article 25 of these Safety Orders.

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY

1. New section filed 2–11–72; effective thirtieth day thereafter (Register 72, No. 7).
2. Repealer and new section filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
3. Amendment of subsection (c)(2) filed 10–14–75 as procedural and organizational; effective upon filing (Register 75, No. 42).
4. Amendment of subsection (b) filed 3–19–79; effective thirtieth day after filing (Register 79, No. 12).
5. Amendment of subsection (a) filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
6. New subsection (a)(6) filed 6–1–92; operative 7–1–92 (Register 92, No. 23).
7. Amendment of subsection (c)(2) filed 3–26–2001; operative 4–25–2001 (Register 2001, No. 13).
8. Amendment filed 4–20–2007; operative 5–20–2007 (Register 2007, No. 16).

## § 1630. Elevators for Hoisting Workers.

(a) In addition to the stairways required in Section 1629, a construction passenger elevator for hoisting workers shall be installed and in operation on or in any building, or structure, 60 feet or more in height above or 48 feet in depth below ground level. The building or structure height shall be determined by measuring from ground level to the highest structural level including the parapet walls, mechanical rooms, stair towers and elevator penthouse structures but excluding antennas, smokestacks, flag poles and other similar attachments.

The building or structure depth shall be determined by measuring from ground level to the lowest floor level excluding local depression such as sumps and elevator pits.

Ground level, for the purposes of this section, is defined as the level of the primary construction entrance to the building or structure.

When computing the height, the depth shall not be considered; and when computing the depth of the building or structure, the height shall not be considered. If the height is at 60 feet or more above or at 48 feet or more below ground level, a construction elevator(s) shall be installed to serve both locations.

EXCEPTIONS:

(1) Scaffolds and falsework.

(2) At work locations where unusual site conditions or unusual structure configurations exist, alternate means of access in conformance with Section 1630(c) shall be permitted.

NOTE: For the purposes of this Section, unusual site conditions and structure configurations are considered to exist at those work locations where the installation of a construction passenger elevator is not feasible.

EXAMPLES:

Unusual site conditions or structure configurations are bridges, steel tank erection, dams, water towers, antennas, cooling towers, refinery towers, stacks, prefabricated parking structures, tower cranes, etc.

(b) Construction passenger elevators shall be installed, operated and maintained in compliance with Article 14 of the Construction Safety Orders.

(c) At unusual site conditions or structure configurations, the Division shall permit alternate means of access, consisting of one or more, but not limited to, the following:

(1) Use of personnel platforms designed, constructed, and operated as specified by Section 5004 of the General Industry Safety Orders, and only under the conditions permitted by the general requirements of that section.

(2) Use of suspended power–driven scaffolds where employees are protected by safety belts secured to independent safety lines by means of a descent control device acceptable to the Division.

(3) Use of appropriate vehicle–mounted elevating and rotating work platforms.

(4) Use of other means, such as inclined elevators, etc. acceptable to the Division, presented in written form and acceptance granted prior to use.

(d) Landings shall be provided for the passenger elevator on or in buildings or structures at the upper–most floor and at intervals not to exceed 3 floors or 36 feet.

NOTE: Other landing locations acceptable to the Division may be substituted where the design of the building or structure make the above impractical.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 2–11–72; effective thirtieth day thereafter (Register 72, No. 7).
2. Amendment of subsections (a) and (b) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
3. Amendment of section title and subsection (a) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
4. Amendment of subsection (a) filed 3–27–79; effective thirtieth day thereafter (Register 79, No. 12).
5. Amendment of subsection (a) filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
6. Amendment of subsection (a) filed 5–25–79; effective thirtieth day thereafter (Register 79, No. 21).
7. Amendment of subsection (c) filed 9–5–79 as procedural and organizational; effective upon filing (Register 79, No. 36).
8. Repealer and new section filed 4–16–80; effective thirtieth day thereafter (Register 80, No. 16).
9. Amendment filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).
10. Amendment of subsection (c)(1) filed 12–22–97; operative 1–21–98 (Register 97, No. 52).

## § 1631. Ladders.

HISTORY

1. Amendment filed 2–11–72; effective thirtieth day thereafter (Register 72, No. 7).
2. Repealer filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).

## Article 19. Floor, Roof, and Wall Openings

### § 1632. Floor, Roof, and Wall Openings to Be Guarded.

(a) This section shall apply to temporary or emergency conditions where there is danger of employees or materials falling through floor, roof, or wall openings, or from stairways or runways.

(b)(1) Floor, roof and skylight openings shall be guarded by either temporary railings and toeboards or by covers.

NOTE: Requirements for guarding existing skylights are found in Section 3212(e) of the General Industry Safety Orders.

(2) Temporary railing and toeboards shall meet the requirements of Sections 1620 and 1621. The railing shall be provided on all exposed sides, except at entrances to stairways.

(3) Covers shall be capable of safely supporting the greater of 400 pounds or twice the weight of the employees, equipment and materials that may be imposed on any one square foot area of the cover at any time. Covers shall be secured in place to prevent accidental removal or displacement, and shall bear a pressure sensitized, painted, or stenciled sign with legible letters not less than one inch high, stating: "Opening—Do Not Remove." Markings of chalk or keel shall not be used.

(c) Ladderway floor openings or platforms shall be guarded by standard railings with standard toeboards on all exposed sides, except at entrance to opening, with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.

(d) Hatchways and chute floor openings shall be guarded by one of the following:

(1) Hinged covers of standard strength and construction and a standard railing with only one exposed side. When the opening is not in use, the cover shall be closed or the exposed side shall be guarded at both top and intermediate positions by removable standard railings.

(2) A removable standard railing with toeboard on not more than two sides of the opening and fixed standard railings with toeboards on all other exposed sides. The removable railing shall be kept in place when the opening is not in use and should preferably be hinged or otherwise mounted so as to be conveniently replaceable.

(e) Pits and trap–door floor openings shall be guarded by floor opening covers of standard strength and construction. While the cover is not in place the pit or trap openings shall be protected on all exposed sides by movable standard railings.

(f) Manhole floor openings shall be guarded by standard covers which need not be hinged in place. While the cover is not in place, the manhole opening shall be protected by standard railings.

(g) Temporary floor openings shall have standard railings.

(h) Floor holes, into which persons can accidentally walk, shall be guarded by either a standard railing with standard toeboard on all exposed sides, or a floor hole cover of standard strength and construction that is secured against accidental displacement. While the cover is not in place, the floor hole shall be protected by standard railing.

(i) Where doors or gates open directly on a stairway, a platform shall be provided and the swing of the door shall not reduce the effective width of the platform to less than 20 inches.

(j) Wall openings, from which there is a drop of more than 4 feet, and the bottom of the opening is less than 3 feet above the working surface, shall be guarded as follows:

(1) When the height and placement of the opening in relation to the working surface is such that either a standard rail or intermediate rail will effectively reduce the danger of falling, one or both shall be provided;

(2) The bottom of a wall opening, which is less than 4 inches above the working surface, regardless of width, shall be protected by a standard toeboard or an enclosing screen either of solid construction or as specified in this section.

(k) An extension platform outside a wall opening onto which materials can be hoisted for handling shall have side rails or equivalent guards of standard specifications. One side of an extension platform may have removable railings in order to facilitate handling materials.

(l) When a chute is attached to an opening, the provisions of this section shall apply, except that a toeboard is not required.

(m) Wall opening protection shall meet the following requirements:

(1) Barriers shall be of such construction and mounting that, when in place at the opening, the barrier is capable of withstanding a load of at least 200 pounds applied in any direction (except upward).

(2) Screens shall be of such construction and mounting that they are capable of withstanding a load of at least 200 pounds applied horizontally at any point on the near side of the screen. They may be of solid construction, of grill work with openings not more than 8 inches long, or of slat work with openings not more than 4 inches wide with length unrestricted.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsections (d)–(h) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment of subsection (a) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
3. Amendment filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).
4. Amendment of subsection (b) and repealer of subsection (e) and subsection relettering filed 5–2–96; operative 6–1–96 (Register 96, No. 18).
5. Amendment of subsection (b) filed 5–1–2002; operative 5–1–2002. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2002, No. 18).
6. Redesignation and amendment of subsection (b) as subsections (b)(1) and (b)(3) and new subsection (b)(2) filed 7–7–2004; operative 8–6–2004 (Register 2004, No. 28).

### § 1633. Elevator Shafts to Be Guarded.

(a) All elevator shafts in which cages are not installed and which are not enclosed with solid partitions and doors shall be guarded on all open sides by standard railings and toeboards.

(b) Overhead protection shall be provided at all times when persons are employed in the shaft and other workmen area above them.

(c) In a shaft, if one elevator is put into service before the others are completed, such elevator(s) in use shall be separated from the other elevators by a continuous partition of solid material, or a wire screen with mesh not larger than 2 inches.

(d) Temporary platforms, such as false cars, shall cover approximately the full area of the shaft. Standard railings shall be provided when opening between platform and structure exceeds 16 inches.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (d) filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).
2. Editorial correction of printing error in subsection (i) (Register 86, No. 45).

## Article 20. Temporary Floors

### § 1635. Floors, Walls and Structural Steel Framed Buildings.

(a) For multifloor buildings, other than structural steel framed buildings, the following shall apply:

(1) Every building shall have the joists, beams, or girders of floors below the floor or level where any work is being done, or about to be done, covered with flooring laid close together, or with other suitable material to protect workers engaged in such building from falling through joists or girders, and from falling substances, whereby life or safety is endangered.

(2) Every building which is of reinforced concrete construction, with reinforced concrete floors, shall have the floor filled in, either with forms or concrete, on each floor before the commencement of work upon the walls of the second floor above or the commencement of work upon the floor of the next floor above.

(3) Every building having wooden floors other than a steel frame building shall have the underflooring, if double flooring is to be used, laid

on each floor within the time prescribed above for reinforced concrete floors. Where single wooden floors are to be used, each floor shall be planked over within the time prescribed above for reinforced concrete floors.

(4) If a span of a floor on a building exceeds 13 feet, an intermediate beam shall be used to support the temporary flooring, but spans not to exceed 16 feet may be covered by three–inch planks without an intermediate beam. The intermediate beam shall be of a sufficient strength to sustain a live load of 50 pounds per square foot of the area supported.

(5) If building operations are suspended and the temporary flooring required by this article is removed, the building shall be replanked upon the resumption of work so that every worker at work has a covered floor not more than two stories below.

(6) Planked floors on buildings shall be tightly laid together of proper thickness, grade and span to carry the working load; such working load to be assumed as at least 25 pounds per square foot.

(7) Fall protection shall be required in accordance with Article 24.

(8) No person shall proceed with any work assigned to or undertaken or require or permit any other person to proceed with work assigned to or undertaken by either, unless the planking or nets required by this article are in place.

(b) For multifloor structural steel framed buildings more than two stories high, the following shall apply: These provisions shall apply to buildings erected in tiers or stories and shall not apply to steel framed buildings having large open spans or areas such as, mill buildings, gymnasiums, auditoriums, hangars, arenas, or stadiums.

(1) The derrick or working floor of every building shall be solidly decked over its entire surface except for access openings.

(2) There shall be a tight and substantial temporary floor within two floors below and directly under that portion of each tier of beams on which erection, riveting, bolting, welding or painting is being done. For operations of short duration of exposure to falling, fall protection shall be required as set forth in Article 24 and Section 1710.

(3) Temporary floors shall be wood planking of proper thickness, grade and span to carry the working load, but shall not be less than two inches thick, full size undressed.

(4) Provision shall be made to secure temporary flooring against displacement by strong winds or other forces.

(5) Planks shall extend a minimum of 12 inches beyond centerline of their supports at each end.

(6) Wire mesh or plywood (exterior grade) shall be used to cover openings adjacent to columns where planks or metal decking do not fit tightly. The materials used must be of sufficient strength as required by Section 1632(b) to provide fall protection for personnel and prevent objects from falling through.

(7) Metal decking where used in lieu of wood planking shall be of equivalent strength and shall be laid tightly and secured to prevent movement.

(8) Floor planks or metal decking that are temporarily removed for any reason whatsoever shall be replaced as soon as work requiring their removal is completed or the open area shall be properly guarded.

(9) Prior to removal of temporary floor planks or metal decking, employees shall be instructed by assigned supervision the steps to be taken to perform the work safely and in proper sequence.

(10) When gathering and stacking temporary floor plank on a lower floor, in preparation for transferring such plank for use on an upper working floor, the steel erector's personnel shall remove such plank successively, working toward the last panel of such floor, so that the work is always being done from the planked floor.

(11) When gathering and stacking temporary floor planks from the last panel, the steel erector's personnel assigned to such work shall be protected by a personal fall protection system used in accordance with Article 24 and Section 1710.

(12) The sequence of erection, bolting temporary guying, riveting and welding shall be such as to maintain the stability of the structural frame at all times during construction. This applies to the dead weight of the structure, plus weight and working reactions of all construction equipment placed thereon plus any external forces that may be applied.

(13) Where a building is being constructed in sections, each section constitutes a building.

(14) Personal fall protection and nets shall be required in accordance with Article 24 and Section 1710.

(15) No person shall proceed with any work unless the planking and metal decking, or nets required by this article are in place.

(c) Special Provisions Applicable to Floor Openings. Section 1632(b) applies to floor openings at locations where steel erection work is taking place. This subsection applies where work is in progress that requires floor openings to be uncovered. For such work, all of the following requirements shall apply:

(1) The floor or working level where such work is in progress shall be under the exclusive control of the steel erection employer and shall be barricaded to prohibit entry by unauthorized personnel.

(2) The floor area adjacent to the floor opening shall be barricaded or the floor opening shall be covered when not attended by steel erection personnel.

(3) All planking and other materials used to cover floor openings shall be capable of safely supporting the greater of 400 pounds or twice the weight of the employees, equipment and materials that may be imposed on any one square foot area of the cover at any time. The cover shall have not less than 12 inches of bearing on the surrounding structure.

(4) All floor opening covers shall bear a sign stating, "OPENING–DO NOT REMOVE", in 2 inch high, black bold letters on a yellow background.

(5) The placement of covers shall be verified by a qualified person prior to each shift and following strong wind conditions.

(6) Workers shall be instructed and required to adhere to the following:

(A) Keep covers in place when not engaged in work requiring the opening to be uncovered, and

(B) Never remove a cover by walking forward or by stepping into an area where they cannot directly observe the surface their feet will touch.

(7) After work requiring floor openings to be uncovered has been completed and prior to allowing other trades in the work area, the guarding and covers for floor openings shall meet the provisions of Section 1632(b).

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3, 7101, 7102, 7103, 7104, 7105, 7107, 7108, 7109, 7251, 7252, 7253, 7254, 7255, 7256, 7257, 7258, 7259, 7261, 7262, 7263, 7264, 7265 and 7266, Labor Code.

HISTORY

1. Amendment filed 4–21–72 as procedural and organizational; effective upon filing (Register 72, No. 17).
2. Amendment filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).
3. Change without regulatory effect correctly numbering subsection (b)(2) filed 11–3–92; operative 12–3–92 pursuant to title 1, section 100, California Code of Regulations (Register 92, No. 45).
4. Amendment of subsection (b)(14) filed 7–2–98; operative 8–1–98 (Register 98, No. 27).
5. Amendment of subsections (a), (a)(7), (b)(2) and (b)(6) filed 5–1–2002; operative 5–1–2002. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2002, No. 18).
6. Amendment of subsections (b)(6) and (b)(11) filed 7–3–2003; operative 8–2–2003 (Register 2003, No. 27).
7. Amendment of subsections (b)(2), (b)(8)–(9), (b)(11) and (b)(14)–(15), new subsections (c)–(c)(7) and amendment of NOTE filed 1–25–2006; operative 2–24–2006 (Register 2006, No. 4).

## Article 21. Scaffolds—General Requirements

### § 1635.1. Permits.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 8–1–74 as an emergency; effective upon filing (Register 74, No. 31).

2. Certificate of Compliance filed 11–22–74 (Register 74, No. 48).
3. Certificate of Compliance refiled 11–28–74 (Register 74, No. 48).
4. Repealer and new section filed 11–29–74; effective thirtieth day thereafter (Register 74, No. 48).
5. Amendment of NOTE filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
6. Change without regulatory effect repealing section filed 10–29–97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 44).

## § 1636. Periphery Railings on Buildings.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).

[The next page is 219.]

## § 1637. General Requirements.

(a) Scaffolds shall be provided for all work that cannot be done safely by employees standing on permanent or solid construction at least 20 inches wide, except where such work can be safely done from ladders.

EXCEPTIONS:

1. Work of a limited nature and of short duration when the permanent or solid construction is less than 20 inches in width and the fall distance does not exceed 15 feet in height and provided adequate risk control is recognized and maintained under competent supervision.
2. Work of a short duration from joists or similar members at 2 feet or closer centers, planks resting on these members forming a plank platform 12 inches wide or equivalent protection.

(b) Scaffold Design and Construction.

(1) Scaffolds shall be constructed of wood or other suitable materials such as steel or aluminum members of known strength characteristics. Where materials other than wood are used, or where scaffold designs differ from those specified in these Orders, the scaffold and its parts must provide a degree of strength, rigidity and safety equivalent to that provided by the described scaffold it replaces.

(2) Each scaffold shall be designed and constructed using a dead load safety factor that will ensure the scaffold supports, without failure, its own weight and 4 times the maximum intended working (live) load applied or transmitted to it. Maximum intended working loads shall be as follows:

(A) Light–duty scaffolds: 25 pounds per square foot of work platform.

EXCEPTION: Light–duty interior scaffolds shall adhere to the loading requirements contained in Section 1640(c)(1).

(B) Medium–duty scaffolds: 50 pounds per square foot of work platform.

(C) Heavy–duty scaffolds: 75 pounds per square foot of work platform.

(D) Special–duty scaffolds: exceeding 75 pounds per square foot of work platform as determined by a qualified person or a Civil Engineer currently registered in the State of California and experienced in scaffold design.

(E) Engineered scaffolds: as determined by a Civil Engineer currently registered in the State of California and experienced in scaffold design.

(3) A scaffold shall not be subjected to loads greater than its maximum intended working load (see 1637(b)(2)).

(4) Manufactured scaffolds shall be used in accordance with the manufacturer's recommendations.

(5) A qualified person shall determine the maximum intended working loads for scaffolds that are neither manufactured nor engineered.

(6) The maximum intended working load for each scaffold shall be posted at a conspicuous location at each jobsite or be provided to each supervisory employee who shall have it readily available at the jobsite.

(c) Anchorage and bracing shall be such that scaffolds and falsework will be prevented from swaying, tipping, or collapsing.

(d) Scaffold lumber, except for planks, used on suspended or ladder–jack scaffolds, shall be the equivalent of "selected lumber," free from damage that affects its strength. (See definitions for lumber specifications.)

(e) (1) Extension planking of the finger type shall be made with at least 5 fingers on each side. These fingers shall be at least 1–inch by 2 1/8–inch selected straight–grained Douglas fir or material of equal strength. All metal fittings shall be adequate to maintain the structural qualities of the device.

(2) The length of the extended planking shall not exceed 12 feet 6 inches, and the actual mechanical overlap between the 2 halves shall be not less than 1/8 of the length of the extended planking. A substantial stop shall be provided to maintain this overlap.

(3) Not more than one employee shall be permitted at one time on any extension planking that is more than 3 feet in height.

(4) Extension planking shall not be used as a platform on ladder–jack, suspended, or other unstable scaffolds.

(f) (1) Except as specified in other Orders, all planking shall be at least equivalent to 2–inch x 10–inch (nominal) lumber selected for scaffold grade plank as defined in Section 1504, Lumber—"Structural Plank."

(2) The maximum permissible spans for 2 x 10–inch (nominal) or 2 x 9–inch (rough) planks shall be as shown in the following Table:

| | | | |
|---|---|---|---|
| Working Load (psf) | 25 | 50 | 75 |
| Permissible Span (ft.) | 10 | 8 | 7 |

(3) Manufactured planks with spans in excess of 10 feet shall be labeled to indicate the maximum safe working load based on a safety factor of four.

(4) All planks shall be capable of safely sustaining the intended load.

(g) Except as specified in other Orders, a scaffold plank shall not overhang its support by more than 18 inches, unless access to this overhanging portion is prevented by a guardrail, or other barrier, or unless the other plank end is securely anchored.

(h) Inspection of Lumber. All scaffold lumber shall be visually inspected for defects before and during use. Defective lumber shall not be used.

(i) (1) Nailing. All nailed joints in scaffolds and wooden falsework must contain enough properly placed nails of ample size to carry the loads they are intended to support.

(2) Nailed joints or connections shall not be used to support concrete hoppers with a capacity in excess of 1/2 cubic yard.

(3) Double–headed nails shall not be used for attaching railings or in other service where the projections might catch on the clothing of workers or create similar hazards.

(4) No nail smaller than 8–penny shall be used in the construction of scaffolding.

(5) All nails shall be driven full length or to the first head when double–headed nails are used.

(6) The minimum number of nails per connection shall be in accordance with the following table:

| | *1" x 6" Material* | *1" x 8" Material* | *2" Material* |
|---|---|---|---|
| Ledgers | 4–8d | 5–8d | 2–16d |
| Ribbons | 3–8d | 3–8d | |
| Braces | 3–8d | 3–8d | 2–16d |
| Guardrails | 2–8d | 2–8d | 2–16d |

(7) Lubricated or wax–coated nails shall not be used in the construction of scaffolds, falsework, or other temporary installations.

(j) Prohibited Types of Scaffolds. Lean–to or jack scaffolds, shore scaffolds, nailed brackets, loose tile, loose brick, loose blocks, stilts, or other similar unstable objects shall not be used as working platforms, or for the support of such platforms. See Plate B–40, Appendix.

EXCEPTION: Bricklayer's "jump boards" no higher than 20 inches above the regular scaffold platform are acceptable for such service when supported by piers of carefully piled bricks or concrete blocks.

(k) Erection and Dismantling.

(1) The erection and dismantling of scaffolds or falsework shall be performed under the supervision and direction of a qualified person.

NOTE: In addition to persons meeting the requirements of "qualified persons" as defined in Section 1504, person(s) possessing a certification of competence in scaffold erection, dismantling and use issued by trade associations, State–approved apprenticeship or training programs or other similar training programs shall be considered a "qualified person(s)."

(2) Erection and dismantling of scaffolds shall be performed in accordance with good engineering practice. Where engineering design is required by these orders, the engineering drawings shall be made available at the job site during erection or upon request by the Division.

(3) All required ties to the structure shall be installed as soon as the scaffold has been completed to the tie–in area during erection.

(4) Ties shall only be removed during dismantling as the work progresses downward unless other methods are used to prevent the scaffold from falling over.

(5) No structural members shall be removed from scaffolds during dismantling operations below the level being dismantled.

(6) Where work platforms are proposed, guardrails shall be installed before other work not directly related to scaffold erection is permitted to begin.

(7) The requirements of Section 1637(k) (2) through (6), inclusive, may be temporarily suspended for short durations, provided adequate risk control is recognized and maintained under immediate, competent supervision.

(l) Removal of Braces. Scaffolds or falsework installations shall not be altered by removing uprights, braces, or supports unless other members providing equivalent strength are substituted.

(m) Loading. Scaffolds shall not be overloaded. Material shall not be allowed to accumulate to the extent that a scaffold is subjected to loading it is not designed to support.

(n) Access.

(1) A safe and unobstructed means of access, such as a walkway, stair, or ladder shall be provided to all scaffold platforms.

(2) Climbing ladders or stairways on scaffolds used for access and egress shall be affixed or built into the scaffold by proper design and engineering, and shall be so located that their use will not disturb the stability of the scaffold.

(A) Manufactured hook–on and attachable ladders shall be securely attached to the scaffold and:

1. Shall be specifically designed for the type of scaffold used;

2. Shall have a minimum rung length of 11–1/2 inches (29 cm); and

3. Shall have uniform spaced rungs with a maximum spacing between rungs of 16–3/4 inches.

(B) If a ladder is used as a means of access to the scaffold, it shall be securely attached and shall comply with Article 25 of the Construction Safety Orders.

(C) Permanent stairways shall comply with the applicable provisions of the General Industry Safety Orders. Prefabricated scaffold steps or stairs, manufactured on or before May 28, 2005, shall comply with the design, manufacture and installation requirements of either the American National Standard ANSI A10.8–1988, Scaffolding–Safety Requirements, or the ANSI/ASSE A10.8–2001, Safety Requirements for Scaffolding, which are hereby incorporated by reference. Prefabricated scaffold steps or stairs, manufactured after May 28, 2005, shall comply with the design, manufacture and installation requirements of ANSI/ASSE A10.8–2001, Safety Requirements for Scaffolding.

(D) Horizontal members of end frames may be designed and used as a climbing device provided that the steps are:

1. Reasonably parallel and level.

2. Arranged to form a continuous ladder as required in Section 1644(a)(8).

3. Provided with sufficient clearance to provide a good handhold and foot space.

(o) Sloped Platforms. Platforms shall not be sloped more than 2 feet vertically to 10 feet horizontally and shall be positively secured against slipping from supports.

(p) Slippery Conditions. No worker shall be permitted to work on a scaffold platform where slippery conditions exist unless such conditions are a necessary part of the work.

(q) Overhead Protection. Workers on scaffolds who are exposed to overhead hazards shall be provided with overhead protection or other means that will effectively eliminate the hazard.

(r) Bolted Connections. Bolts used in the construction of scaffolds shall be of a size and in sufficient numbers at each connection to develop the designed strength of the scaffold. (See Plate B–31, Appendix.)

(s) Hoisting of Materials. Where materials are line–hoisted onto a scaffold, a tag line shall be used where necessary to control the load.

(t) Platform Planks at Corners. When a scaffold materially changes its direction, the platform planks shall be laid to prevent tipping. The planks that meet the corner ledger at an angle shall be laid first, extending over the diagonally placed ledger far enough to have a good safe bearing, but not far enough to involve any danger from tipping. The planking running in the opposite direction at an angle shall be laid so as to extend over and rest on the first layer of planking.

(u) Work on or from scaffolds is prohibited during storms or high winds unless a qualified person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system, as defined in Section 1504 of these Orders, or wind screens. Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.

(v) Wood platforms shall not be covered with opaque finishes, except that platform edges may be covered or marked for identification. Platforms may be coated periodically with wood preservatives, fire–retardant finishes, and slip–resistant finishes; however, the coating may not obscure the top or bottom wood surfaces.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment of subsections (i) and (l) filed 10–5–81; effective thirtieth day thereafter (Register 81, No. 41).
3. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
4. Amendment of subsection (n)(2)(B) filed 3–19–99; operative 4–18–99 (Register 99, No. 12).
5. New subsections (u) and (v) filed 4–6–2001; operative 5–6–2001 (Register 2001, No. 14).
6. New subsection (b), redesignation of former subsection (b) as new subsection (b)(1) and new subsections (b)(2)–(6) filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).
7. New subsections (n)(2)(A)–(n)(2)(A)3., subsection relettering and amendment of newly designated subsections (n)(2)(C) and (n)(2)(D)2. filed 4–28–2005; operative 5–28–2005 (Register 2005, No. 17).

## Article 22. Scaffolds—Various Types

### § 1640. Light–Duty Wooden Pole Scaffolds.

(a) Pole scaffolds to be used by carpenters, lathers, shinglers, painters, plasterers, sheet metal workers, or other trades not using heavy tools or storing heavy materials on the scaffolds, shall be constructed as follows:

(See Plate B–18, Appendix)

(b) Light–Duty Exterior Scaffolds.

(1) Uprights. For heights not to exceed 20 feet, the uprights shall be 2–inch by 4–inch lumber or heavier, spaced not more than 3 feet between uprights at right angles to the wall and not more than 10 feet center to center, parallel to the wall. The inside uprights may be omitted and ledgers attached to the permanent structure, provided that the method of attaching the ledgers to the permanent structure will make the connection as secure as though the ledger were nailed to the upright with 5 8–penny nails. The splices of uprights shall be made with square butt joints, and scabs of 1–inch by 4–inch or heavier material at least 48 inches long shall be nailed on 2 sides of each upright with 6 nails in each 1/2 of each scab. If the uprights of the scaffold rest on a surface that might cause slipping, a continuous sill or other means shall be provided to hold the uprights in place. When the scaffold is resting on earth or other such material, the uprights shall rest on and be secured to the equivalent of a 2–inch by 10–inch by 10–inch wooden base.

NOTE: 1 1/8–inch by 10–inch by 10–inch piece of exterior grade plywood may be used in lieu of the wooden base mentioned above.

(2) Ledgers and Ribbons. The platforms of the scaffold shall be supported by ledgers. For ledgers spanning not more than 3 feet between uprights, use 2 pieces of 1–inch by 6–inch board, 1 being on each side of the uprights and fastened securely at each point of support. Single 2–inch by 4–inch ledgers are not permitted. Vertical spacing of ribbons and ledgers shall not exceed 7 feet. The ribbons shall be 1–inch by 6–inch or heavier material, placed on the outer uprights, directly under, and in contact with, the ledgers. The ribbons shall be long enough to extend from upright to upright without splices.

EXCEPTIONS:

1. When metal ledgers are used or when ledgers are bolted or when a 45–degree angle brace is nailed to the uprights between double ledgers, and ledgers also

nailed to this brace, the ribbon may be placed at other elevations such as guardrail height, but they cannot be eliminated from the scaffold.
2. Metal ledgers and ribbons that are part of a patented scaffold system may be used when installed in accordance with the manufacturer's instructions.

(3) Ties and Braces. The scaffold shall be securely tied to the building or structure by means of a double looped No. 12 iron wire, or single looped No. 10 iron wire or 1–inch by 4–inch boards with at least 2 nails at each connection or equivalent means. Ties shall connect to the inside uprights and shall not be more than 20 feet apart horizontally and vertically. The outside line of uprights shall contain sufficient diagonal bracing of 1–inch by 6–inch material in a vertical plane across the entire face of the scaffold in both directions to prevent swaying, tipping, or collapsing. (See Appendix Plate B–18).

EXCEPTION: Bracing of 2–inch by 4–inch material may be used provided that the bracing extends from ledger to next higher or lower ledger or from ledger to sill in the form of an "X" in the end bays and in every third bay in between so that the "X" bracing also extends from the upper–most ledger to the sill, vertically, in each of these bays.

(4) Railing. Open sides and ends of intermediate working levels 7 1/2 feet or more above grade shall be guarded by a 2–inch by 4–inch top rail nailed to the uprights so that the top edge is between 42 inches and 45 inches above the platform. Midrails of at least 2–inch by 4–inch material are required at all work levels. The uppermost platform shall be protected by a top rail consisting of double 2–inch by 4–inch members. One member shall be fastened in a flat position on top of the uprights and the other member shall be fastened in an edge–up position to the inside of the uprights and at the side of the top member. A single 2–inch by 4–inch member having an allowable bending stress of at least 1,900 psi may be used as a top rail.

(5) Platforms.

(A) Platform planks shall be of 2–inch by 10–inch or larger material and of such length that they overlap the ledgers at each end by at least 6 inches. A plank shall not overlap an unsupported end of another plank. The working platform shall cover the entire space between scaffold uprights, except for the open area under the backrailing, which shall not be more than 8 inches wide. Platforms shall be at least 20 inches wide and within 14 inches of the structure wall. When moving platforms to the next level, the old platform shall be left undisturbed until the new ledgers have been set in place ready to receive the platform planks.

EXCEPTION: A single 2–inch by 10–inch plank may be used for light trades work up to a height of 4 feet.

(B) Working platforms for light–trades work may be made of 3/4–inch Douglas fir plywood instead of 2–inch plank if the platform is at least 2 feet wide, nailed in place and supported on cross members at 4–foot or closer intervals along its length.

(c) Light–Duty Interior Scaffolds.

(1) Loading. For scaffolds of the following design, the imposed load on the platform area shall not apply more than 1,500 pounds to any 1 ledger or a single upright, and the total load on the whole platform area shall not average more than 15 pounds per square foot.

(2) Uprights.

(A) For heights not to exceed 20 feet the uprights shall be 2–inch by 4–inch lumber, or heavier. For heights between 20 feet and 60 feet, the uprights shall be 3–inch by 4–inch lumber, or heavier, except for the top 20 feet which may be 2–inch by 4–inch material. The horizontal distance between uprights shall not exceed 10 feet measured either parallel or at right angles to the direction of the platform planks.

(B) If uprights are spliced, the joints must conform to that described in subsection 1640(b)(1), and they shall be located near a point where ribbons are attached or where equivalent lateral support is provided. Pairs of horizontal ribbons at right angles to one another are required at vertical intervals of 7 feet, or less.

(3) Ledgers and Ribbons. The platform of the scaffold shall be supported by ledgers made of one piece of 2–inch by 10–inch or heavier material, placed with the edge upward. The ribbons shall be 1–inch by 6–inch or heavier material, placed on all uprights directly under and in contact with the ledgers. Additional horizontal ribbons, in pairs at right angles to one another, shall be provided at lower levels in order to provide lateral support for all uprights at vertical intervals not greater than 7 feet.

(4) Diagonal Braces. Each line of uprights shall contain sufficient diagonal bracing of 1–inch by 6–inch material in vertical planes, lengthwise and crosswise, to prevent swaying, tipping, or collapsing. If the scaffold extends to and bears against the walls of the building, the horizontal ribbons and ledgers may provide adequate support without diagonal braces, but provision must always be made for adequate lateral stability.

(5) Platforms.

(A) The platform shall consist of 2–inch by 10–inch or larger planks laid closely together. There shall be no other openings in the platform except those necessary for the passage of employees and material. Unless nailed in place, planks shall be of such length that they overlap the ledgers at each end by at least 6 inches. A plank shall not overlap an unsupported end of another plank.

(B) Working platforms shall cover the entire space between scaffold uprights, except for the open area under the backrailing which shall not be more than 8 inches.

(C) Platforms shall extend within 14 inches of the finished face of the building.

(D) Douglas fir plywood that is 3/4 inch thick, or thicker, may be used for platforms if the panels are 4 feet wide, or wider, and are supported on ledgers or crossmembers at 4–foot or closer intervals.

(6) Railings. Open sides of working levels 7 1/2 feet or more above grade shall be provided with top rails and midrails as specified in Subsection 1640(b)(4). When scaffold platforms are erected in sections it is necessary for workers to travel between these sections, such sections shall be provided with connecting runways equipped with railings as described in Section 1620.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Editorial correction in subsection (f)(2)(B) (Register 70, No. 48).
2. Repealer and new section filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
3. Amendment filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
4. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
5. Amendment of section heading and subsection (b), redesignation and amendment of former subsection (b)(5)(C) as new subsection (c) and amendment of newly designated subsection (c)(1) filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

## § 1641. Heavy–Trade Wooden Pole Scaffolds.

(a) Pole scaffolds to be used by bricklayers, stonemasons, concrete workers, or other trades using heavy tools or storing heavy material on the scaffold shall be constructed as follows:

(See Plate B–19, Appendix):

(b) When buggies are used on scaffolds to transport concrete, a strong scaffold shall be designed that is capable of supporting a concentrated load equal to the weight of a loaded buggy at any point on girders, beams, or planking.

(c) Uprights. For heights not to exceed 20 feet, the uprights shall be of 4–inch by 4–inch lumber or heavier material, with a space of 4 feet between uprights at right angle to the wall and not more than 7 feet, center to center, parallel to the wall. The splices of 4–inch by 4–inch uprights shall be made with square butt joints, and scabs of 2–inch by 4–inch material at least 48 inches long shall be nailed in place on 2 sides with 6 nails in each 1/2 of each scab. Uprights laminated from 2–inch by 4–inch material are acceptable if the joints of each lamination are staggered, and either reinforced by scabs or so arranged that they occur at or near ribbon attachment points. If the uprights rest on a surface that might cause slipping, a continuous sill or other means shall be provided to hold the uprights in place. When the scaffold is resting on earth or other such material, the uprights shall rest on and be secured to the equivalent of a 2–inch by 10–inch by 10–inch wooden base.

Note: A 1 1/8-inch by 10-inch by 10-inch piece of exterior grade plywood may be used in lieu of the wooden base mentioned above.

(d) Ledgers and Ribbons.

(1) The platform shall be supported by ledgers and ribbons, nailed or bolted to the uprights. For ledgers spanning not more than 4 feet between uprights, use either 1 piece of 2-inch by 6-inch lumber securely fastened at each point of support or 2 pieces of 1-inch by 6-inch board, 1 being on each side of the uprights and fastened securely at each point of support.

(2) Ribbons shall be 1-inch by 6-inch or heavier material securely fastened to both inside and outside uprights directly under and in contact with the ledgers. Vertical spacing of ribbons and ledgers shall not exceed 7 feet. Ribbons shall be long enough to extend from upright to upright without splices.

(e) Railing. Open sides and ends of working levels 7 1/2 feet or more above grade shall be provided with top rails and midrails as specified in subsection 1640(b)(4).

EXCEPTION: That side of bricklayers' and masons' scaffolds adjacent to the work under construction provided that the wall is higher than the adjacent work platform.

(f) Ties and Braces.

(1) The scaffold shall be rigidly tied to the building or structure by means of a double looped No. 12 iron wire, or single looped No. 10 iron wire or equivalent or stronger material used in combination with spacer blocks between inside uprights and the structure. Ties shall connect to the inside uprights, and they shall be not more than 15 feet apart vertically or horizontally.

(2) The entire scaffold shall be rigidly braced with 1-inch by 6-inch boards, and every part thereof so secured as to prevent swaying, tipping, or collapsing. The diagonal bracing shall extend in both directions across the entire outside vertical face. (See Appendix Plate B-19.)

(g) Platforms.

(1) The platform shall be not more than 4 feet wide, constructed of planks at least 2 inches thick and 10 inches wide, laid closely together. Platform planks that are butt-ended (not overlapped) must be nailed to ledgers consisting of 2-inch by 6-inch or heavier material. If the planks are not nailed, they shall be of such length that they overlap the ledgers at each end by at least 6 inches. A plank shall not overlap an unsupported end of another plank. The working platform shall cover the entire space between scaffold uprights except for the open area under the backrailing, which shall not be more than 8 inches.

(2) Platforms shall extend within 14 inches of the finished face of the building, except those used primarily by bricklayers and stonemasons shall extend to within 7 inches of the finish face of the building on which the work is being performed.

(3) When moving platforms to the next level, the old platform shall be left undisturbed until the new ledgers have been set in place ready to receive the platform planks.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11-14-75; effective thirtieth day thereafter (Register 75, No. 46.)
2. Amendment of subsections (a), (d), and (e) filed 3-19-79; effective thirtieth day thereafter (Register 79, No. 12).
3. Amendment of subsection (c) filed 9-5-79; effective thirtieth day thereafter (Register 79, No. 36).
4. Amendment of subsection (c) filed 3-7-80; effective thirtieth day thereafter (Register 80, No. 10).
5. Amendment filed 7-24-87; operative 8-23-87 (Register 87, No. 33).
6. Editorial correction to insert subsection (a) indicator (Register 91, No. 23).

## § 1642. Schedules of Timber Scaffolds up to 60 Feet in Height.

(Listed lumber sizes are those required for the specified spans; other sizes may be used for different spans, if equivalent strength is provided.)

| | *Interior* | *Light Trades* | *Heavy Trades* |
|---|---|---|---|
| Uprights for scaffolds not over 20' in height | 2"x4" | 2"x4" | 4"x4" |
| Uprights for scaffolds 20' to 60' in height | 3"x4" | 3"x4" | 4"x6" |
| Ribbons directly under ledgers | 1"x6" | 1"x6" | 1"x6" |
| Ledgers | 2"x10" | 2—1"x6" | 2—1"x6" or 1—2"x6" |
| Spacing uprights, transverse, at right angles to platform planks | 10' | 3' in clear | 4' in clear |
| Spacing uprights, longitudinal, parallel to direction of platform planks | 10' | 10' | 7' |
| Spacing ribbons or ledgers, vertical | 7'0" max. | 7'0" max. | 7'0" max. |
| Splice pieces 48" long (for uprights) | 2—1"x4" or (2—2"x4") | 2—1"x4" or (2—2"x4") | 2—2"x4" |
| Braces | 1"x6" | 1"x6" | 1"x6" |
| Railing | 2"x4" | 2"x4" | 2"x4" |
| Toeboard | 1"x4" | 1"x4" | 1"x4" |
| Width of platform | 10' | 3' max. | 4' max. |
| Planking | 2" thick and at least 10" wide | | |

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 11-14-75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment filed 3-19-79; effective thirtieth day thereafter (Register 79, No. 12).

## § 1643. Scaffolds over 60 Feet in Height.

All wooden pole scaffolds over 60 feet in height shall be designed by a Civil Engineer currently registered in California and constructed and erected in accordance with such design.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11-14-75; effective thirtieth day thereafter (Register 75, No. 46).
2. New Note filed 7-24-87; operative 8-23-87 (Register 87, No. 33).

## § 1644. Metal Scaffolds.

(a) General.

(1) Metal scaffolds shall be designed to support all dead, live, and wind loads to which they will be subjected.

(2) No metal scaffold equipment that is broken or deteriorated to the extent that its section is structurally weakened shall be used.

(3) All stationary scaffold legs, including those of outriggers, shall rest upon base plates available from the manufacturer for this service. Each base plate shall have support adequate to sustain the load and prevent horizontal movement. When the scaffold or outrigger is resting on earth or soft material, the base plate shall rest on and be secured to the equivalent of a 2-inch by 10-inch by 10-inch wooden base.

NOTE: A 1 1/8-inch by 10-inch by 10-inch piece of exterior grade plywood may be used in lieu of the wooden base mentioned above.

(4) Platform planks shall not be placed on guardrails to obtain greater height.

(5) Metal scaffolds shall be securely tied to the building or structure by means of a double looped No. 12 iron wire, or single looped No. 10 iron wire or equivalent at intervals not to exceed 30 feet horizontally and subject to the following:

(A) Ties shall be required at the free ends of the scaffold when the height of the scaffold platform exceeds 3 times the least base dimension. The remaining ties of the first row shall be required when the height of the scaffold platform is four times the least base dimensions.

(B) Ties for subsequent levels shall be installed at 26-foot intervals vertically, with the last tie no further from the top than four times the least base dimension.

(C) As an alternate means, scaffolds shall be guyed or outriggers shall be used to prevent tipping or upsetting.

(D) Wind Loading. When scaffolds are partially or fully enclosed, specific precautions shall be taken to assure the frequency and adequacy of ties attaching the scaffolding to the building.

(6) Securely attached railings as provided by the scaffold manufacturer, or other material equivalent in strength to the standard 2– by 4–inch wood railing made from "selected lumber" (see definition), shall be installed on open sides and ends of work platforms 7 1/2 feet or more above grade. The top rail shall be located at a height of not less than 42 inches nor more than 45 inches measured from the upper surface of the top rail to the platform level. A midrail shall be provided approximately halfway between the top rail and the platform.

NOTE: Toeboards or side screens may also be required. (See Section 1621.)

(A) "X" bracing is acceptable as a toprail if the intersection of the "X" occurs at 45 inches (plus or minus 3 inches) above the work platform, provided a horizontal rail is installed as a midrail between 19 and 25 inches above the work platform. The maximum vertical distance between the "X" brace members at the uprights shall not exceed 48 inches.

(B) "X" bracing is acceptable as a midrail if the intersection of the "X" falls between 20 inches and 30 inches above the work platform.

EXCEPTIONS:

(1) Railings are not required on that side of bricklayers' and masons' scaffold adjacent to the work under construction provided the wall is higher than the adjacent work platform.

(2) For end rail openings less than 3 feet, double wrapped iron wire at least No. 12 gauge in thickness, or wire rope at least 1/4 inch minimum diameter is permitted, provided the wire or wire rope is securely fastened.

(7) Platform planks shall be of 2–inch by 10–inch or wider material and of such length that they overlap the ledgers at each end by at least 6 inches.

A plank shall not overlap an unsupported end of another plank.

The working platform shall cover the entire space between scaffold uprights, except for the open area under the back railing. Such open area shall not exceed 10 inches in width.

The inboard edge of the work platform shall be no more than 16 inches from the building or structure wall except for those scaffolds used by bricklayers and stonemasons the platforms of which shall extend to within 7 inches of the finish face of the building or structure on which the work is being performed.

(8) All ladders used for access shall conform to ladders, Article 25. When only a part of the width of the metal scaffold frame conforms to ladder spacing, then these frames must be erected in a manner that makes a continuous ladder bottom to top, with ladder sides of the frames in a vertical line.

(b) Tube and Coupler Scaffolds.

(1) A light duty tube and coupler scaffold shall have all posts, ledgers, ribbons and bracing of nominal 2–inch O. D. steel tubing. The posts shall be spaced no more than 6 feet apart by 10 feet along the length of the scaffold. Other structural metals when used must be designed to carry an equivalent load. No dissimilar metals shall be used together.

(2) A medium duty tube and coupler scaffold shall have all posts, ribbons and bracing of nominal 2–inch O. D. steel tubing. Posts spaced not more than 6 feet apart by 8 feet along the length of the scaffold shall have ledgers of nominal 2 1/2–inch O. D. steel tubing. Posts spaced not more than 5 feet apart by 8 feet along the length of the scaffold shall have ledgers of nominal 2–inch O. D. steel tubing. Other structural metals, when used, must be designed to carry an equivalent load. No dissimilar metals shall be used together.

(3) A heavy duty tube and coupler scaffold shall have posts, ribbons, and bracing of nominal 2–inch O. D. steel tubing, with the posts spaced not more than 6 feet by 6 feet 6 inches. Other structural metals, when used, must be designed to carry an equivalent load. No dissimilar metals shall be used together.

(4) Tube and coupler scaffolds shall be limited in heights and working levels to those permitted in Tables 1, 2, and 3. Drawings and specifications of all tube and coupler scaffolds above the limitations in Tables 1, 2, and 3 shall be designed by a Civil Engineer currently registered in the State of California.

(5) All tube and coupler scaffolds shall be constructed and erected to support 4 times the maximum intended loads as set forth in Tables 1, 2, and 3, or as set forth in the specifications by a Civil Engineer currently registered in California.

Table 1
Light Duty Tube and Coupler Scaffolds

| | |
|---|---|
| Uniformly distributed load | Not to exceed 25 p.s.f. |
| Post spacing (longitudinal) | 10′0″ |
| Post spacing (transverse) | 6′0″ |

| *Working Levels* | *Additional Planked Levels* | *Maximum Height* |
|---|---|---|
| 1 | 8 | 125′ |
| 2 | 4 | 125′ |
| 3 | 0 | 91′0″ |

Table 2
Medium Duty Tube and Coupler Scaffolds

| | |
|---|---|
| Uniformly distributed load | Not to exceed 50 p.s.f. |
| Post spacing (longitudinal) | 8′0″ |
| Post spacing (transverse) | 6′0″ |

| *Working Levels* | *Additional Planked Levels* | *Maximum Height* |
|---|---|---|
| 1 | 6 | 125′ |
| 2 | 0 | 78′0″ |

Table 3
Heavy Duty Tube and Coupler Scaffolds

| | |
|---|---|
| Uniformly distributed load | Not to exceed 75 p.s.f. |
| Post spacing (longitudinal) | 6′6″ |
| Post spacing (transverse) | 6′0″ |

| *Working Levels* | *Additional Planked Levels* | *Maximum Height* |
|---|---|---|
| 1 | 6 | 125′ |

(6) Posts shall be accurately spaced, erected on suitable bases, and maintained plumb.

(7) Ribbons shall be erected along the length of the scaffold, located on both the inside and the outside posts at even height. Ribbons shall be interlocked to the inside and the outside posts at even heights. Ribbons shall be interlocked to form continuous lengths and coupled to each post. The bottom ribbons shall be located as close to the base as possible. Ribbons shall be placed not more than 6 feet 6 inches on centers.

(8) Ledgers shall be installed transversely between posts and shall be securely coupled to the posts bearing on the ribbon coupler. When coupled directly to the ribbons, the coupler must be kept as close to the posts as possible.

(9) Ledgers shall be at least 4 inches but not more than 12 inches longer than the post spacing or ribbon spacing.

(10) Cross bracing shall be installed across the width of the scaffold at least every third set of posts horizontally and every fourth ribbon vertically. Such bracing shall extend diagonally from the inner and outer ribbons upward to the next outer and inner ribbons.

(11) Longitudinal diagonal bracing on the inner and outer rows of poles shall be installed at approximately a 45 degree angle from near the base of the first outer post upward to the extreme top of the scaffold. Where the longitudinal length of the scaffold permits, such bracing shall be duplicated beginning at every fifth post. In a similar manner, longitudinal diagonal bracing shall also be installed from the last post extending back and upward toward the first post. Where conditions preclude the attachment of this bracing to the posts, it may be attached to the ribbons.

(c) Tubular Welded Frame Scaffolds.

(1) Metal tubular frame scaffolds, including accessories such as braces, brackets, trusses, screw legs, ladders, etc., shall be designed, constructed, and erected to safely support four times the maximum rated

load. The scaffold manufacturer's erection instructions shall be followed on all installations.

(2) Spacing of panels or frames shall be consistent with the loads imposed.

(3) Panels or frames shall be braced by horizontal bracing, cross bracing, diagonal bracing or any combination thereof for securing vertical members together laterally, and the cross braces shall be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, square, and rigid. All brace connections shall be made secure.

(4) Panel or frame legs shall be set on adjustable bases or plain bases placed on mud sills or other foundations adequate to support the maximum anticipated load.

(5) Panels or frames shall be placed one on top of the other with coupling or stacking pins to provide proper vertical alignment of the legs.

NOTE: Where an intervening ledge prevents the vertical stacking of legs, the ledge may be used as a base provided that an equally safe installation is obtained.

(6) Where uplift may occur, panels shall be locked together vertically by pins or other equivalent suitable means.

(7) Drawings and specifications for all frame scaffolds over 125 feet in height above the base plates shall be designed by a Civil Engineer currently registered in California.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 11-14-75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment of subsection (a)(6) filed 8-3-76 as an emergency; effective upon filing (Register 76, No. 32).
3. Certificate of Compliance filed 10-8-76 (Register 76, No. 41).
4. Amendment filed 3-19-79; effective thirtieth day thereafter (Register 79, No. 12).
5. Amendment of subsection (a)(5) filed 9-5-79; effective thirtieth day thereafter (Register 79, No. 36).
6. Amendment of subsections (a)(4) and (a)(5) filed 1-17-80; effective thirtieth day thereafter (Register 80, No. 3).
7. Amendment of subsection (a)(7) filed 10-5-81; effective thirtieth day thereafter (Register 81, No. 41).
8. Amendment filed 7-24-87; operative 8-23-87 (Register 87, No. 33).
9. Amendment of subsection (a)(6) EXCEPTIONS filed 10-28-98; operative 11-27-98 (Register 98, No. 44).
10. Amendment of subsection (a)(6)(B) filed 2-28-2006; operative 3-30-2006 (Register 2006, No. 9).

## § 1645. Outrigger and Bracket Scaffolds.

(a) Heavy Trades.

(1) Outrigger beams of outrigger scaffolds for use by bricklayers, stonemasons, or other heavy trades shall be made of "selected lumber," or better. Those of the following sizes shall not project more than 6 feet beyond the outer support; shall be securely anchored and braced to prevent tipping or turning; and shall be spaced at centers of 7 feet 6 inches, or closer.

The inboard end of outrigger beams, measured from the fulcrum point to anchorage point, shall not be less than 1 1/2 times the outboard end in length. The fulcrum point of the beam shall rest on a secure bearing at least 6 inches square.

(2) On continuous scaffolds, where the beams may receive load from work platforms on each side, such beams shall not be less than 3 inches by 16 inches in cross section. For single scaffolds, consisting of a platform between 2 beams, the outrigger beams may have a smaller cross section, but not less than 3 inches by 12 inches. The platforms shall consist of planks, at least 2 inches by 10 inches, covering the full width of the projection. Planking shall be nailed or bolted or otherwise secured to outriggers.

The ends of the planks shall not project more than 18 inches beyond the outrigger, and not less than 6 inches, unless they are nailed in place. Every outrigger scaffold 7 1/2 feet or more in height shall be provided with a railing and toeboard. The top rail shall consist of double 2-inch by 4-inch members. One member shall be fastened in a flat position on top of the posts and the other member shall be fastened in an edge-up position to the inside of the posts and at the side of the top rail.

Additional protection in the form of screen enclosing the opening between rail and toeboard shall be provided if material on the scaffold is piled higher than the toeboard.

(3) Where additional working levels are required to be supported by the outrigger method, the plans and specifications of the outrigger and scaffolding structure shall be prepared by a Civil Engineer currently registered in California.

(b) Figure Four or Light Outrigger Scaffolds. (See Plate B-22, Appendix.) Figure Four or light outrigger frames shall be spaced not more than 10 feet apart, and shall be constructed as follows from sound lumber:

The outrigger ledger shall consist of 2 pieces of 1-inch by 6-inch or heavier material nailed on opposite sides of the vertical and angle braces. Ledgers shall project not more than 3 feet 6 inches from the outside wall line and shall be substantially braced and secured to prevent tipping or turning. The knee or angle brace shall intersect the beam at least 3 feet from the wall at an angle of 45 degrees, and the lower end shall be nailed to a vertical brace near the point where it contacts the wall. The platform shall consist of 2 or more 2-inch by 10-inch planks, which shall be of such length that they extend at least 6 inches beyond ledgers at each end. Unsupported projecting ends of planks shall be limited to an overhang of 18 inches, or less.

Each wooden bracket shall be hooked over a well-secured and adequately strong supporting member.

Every Figure Four or light outrigger scaffold 7 1/2 feet or more in height shall be provided with a railing and toeboard. The top rail shall consist of double 2-inch by 4-inch members. One member shall be fastened in a flat position on top of the posts and the other member shall be fastened in an edge-up position to the inside of the posts and at the side of the top member.

(c) Stud Jacks. (See Plate B-40, Appendix.) Stud-jack scaffold supports shall have ledgers of at least 2-inch by 6-inch materials, or equal, not longer than 5 feet, and each jack shall attach to not less than 2 sound, adequately fastened, 2-inch by 4-inch wall studs of normal length. Stud-jack scaffolds shall not be used at elevations of 7 1/2 feet or higher above the ground, unless so designed that a substantial backrail may be easily attached.

(d) Bracket Scaffolds. The use of bracket scaffolds shall be permitted only when through-bolted to walls, with at least 5/8-inch diameter bolts; welded to steel tanks; secured with a metal stud attachment device; or, hooked over a well-secured and adequately strong supporting member.

NOTE: This Order does not prohibit the use of bracket scaffolds that are an integral part of movable form panels or similar construction. (See Plates B-20 and B-21, Appendix.)

All form scaffolds shall be designed and erected with a minimum safety factor of 4, computed on the basis of the maximum rated load; i.e., the total of all loads including the working load, the weight of the scaffold, and such other loads as may be reasonably anticipated.

(1) Spacing of brackets shall be such that they are not more than 10 feet apart horizontally.

(2) If brackets are secured to walers held by snap-tie or she-bolts, they must extend through both wall forms and be properly secured.

(3) Railings shall be installed on bracket scaffolds for all heights 7 1/2 feet or more above the ground.

(4) The platform shall consist of two or more 2-inch by 10-inch planks, laid closely together, and shall be of such length that they overlap the ledgers at each end by at least 6 inches. Unsupported projecting ends of planks shall be limited to an overhang of 18 inches or less.

(5) Wooden bracket form scaffolds shall be an integral part of the form panel and shall not be used to support loads exceeding 25 pounds per square foot, unless specifically designed for a heavier loading. Ledgers shall be made from 2-inch by 6-inch or heavier material and shall not project more than 3 feet 6 inches from the form panel. Uprights shall consist of 2-inch by 4-inch or heavier material. Scaffold planks shall be either nailed, wired or bolted to the ledgers. Planks shall overlap the ledgers

at each end by at least 6 inches. Unsupported projecting ends of platform planks shall be limited to a maximum overhang of 18 inches. Ledgers shall not be spaced more than 8 feet on centers. (See Appendix Plate B–20.)

(6) Bracket scaffolds installed on metal tanks larger than 40 feet in diameter for the use of those engaged in tank erection operations, shall have platforms that are at least 30 inches wide, with the open ends and sides protected by a substantial railing, with midrail, which may be altered by the substitution of 3/8–inch wire rope for the top and middle rails. Platforms on 40–foot or smaller diameter tanks will be acceptable if not less than 24 inches in width, consisting normally of two 2–inch by 12–inch planks side by side, protected by railings as described above.

NOTE: For railing requirements, see Section 1620.

(e) Carpenters' Bracket Scaffolds.

(1) The brackets shall consist of a triangular wood frame not less than 2 x 3 inches in cross section, or of metal of equivalent strength. Each member shall be properly fitted and securely joined.

(2) Each bracket shall be attached to the structure by means of one of the following:

(A) A bolt, no less than 5/8–inch in diameter, which shall extend through to the inside of the building wall;

(B) A metal stud attachment device;

(C) Welding to steel tanks;

(D) Hooking over a well–secured and adequately strong supporting member.

(3) The brackets shall be spaced no more than 10 feet apart.

(4) No more than two employees shall occupy any given 10 feet of a bracket scaffold at any one time. Tools and materials shall not exceed 75 pounds in addition to the occupancy.

(5) The platform shall consist of not less than two 2– x 10–inch nominal size planks extending not more than 18 inches or less than 6 inches beyond each end support.

NOTE: For railings see Section 1620.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Editorial correction in subsection (b) (Register 70, No. 48).
2. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
3. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

## § 1646. Tower Scaffolds and Rolling Scaffolds, Wood or Metal.

(a) The minimum dimension of the base of any free–standing tower or rolling scaffold shall not be less than 1/3 the height of the scaffold unless such scaffold is securely guyed or tied. For restrictions when worker rides scaffold see paragraph (f) following.

(b) Construction and Erection.

(1) The uprights, ledgers, ribbons, braces, and splices shall be equivalent to the standards specified in other applicable Sections of these Orders. Railings are required if the platform is 7 1/2 feet or more above grade. Railings shall be installed in accordance with the provisions of Section 1644(a)(6).

NOTE: Toeboards or side screens may also be required. (See Section 1621.)

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(2) The screw jack shall extend into its leg tube at least 1/3 its length, but in no case shall the exposed thread exceed 12 inches.

(3) The uprights (legs of rolling scaffolds) shall not exceed 24 inches without being braced according to the manufacturer's specifications.

(c) Wheels or casters of rolling scaffolds shall be provided with an effective locking device, and kept locked when workers are climbing or working on the scaffold. At least 2 of the 4 casters or wheels shall be a swivel type. All wheels or casters shall be properly designed for strength and dimension to support at least 4 times the maximum intended load.

(d) Joints of metal scaffolds shall be locked together with lock pins, bolts or equivalent fastening, including caster joints. Lock pins used must be of a locking type.

EXCEPTION: Screw jacks and guardrail posts.

(e) Platform planks on rolling or tower scaffolds shall not project farther than 18 inches past supports at the edges of the scaffold. An effective method of preventing platform planks on rolling scaffolds from slipping off must be provided. The nailing of cleats of 1-inch material on the underside of each projecting end, or other equivalent means, will be acceptable. Platforms shall be tightly planked for the full width of the scaffold except for any necessary entrance openings.

NOTE: Refer to Orders 1621 and 1637(f) for regulations on required plank and platform sizes.

(f) Riding. Employees may ride on rolling scaffold moved by others below if the following conditions exist:

(1) The floor or surface is within 3 degrees of level, and free from pits, holes, or obstructions.

(2) The minimum dimension of the scaffold base, when ready for rolling, is at least 1/2 of the height. Outriggers, if used, shall be installed on both sides of staging.

(3) The wheels are equipped with rubber or similar resilient tires. For towers 50 feet or over metal wheels may be used.

(g) Ladders. Ladders or other unstable objects shall not be placed on top of rolling scaffolds to gain greater height.

(h) Scaffolds on Vehicles. When scaffolds are built on motor trucks or vehicles, they must be rigidly attached to the truck or vehicle. The attachment must be made in a manner that will develop the full strength of the scaffold in resisting an overturning force.

(i) Trucks or vehicles that have scaffolds attached to them shall have a device in use whenever employees are on the scaffold that prevents swaying or listing of the platforms.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (c) and (e) filed 11-14-75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment of subsection (b)(1) filed 8-3-76 as an emergency; effective upon filing (Register 76, No. 32).
3. Certificate of Compliance filed 10-8-76 (Register 76, No. 41).
4. Amendment of subsection (b) filed 9-5-79 as procedural and organizational; effective upon filing (Register 79, No. 36).
5. Amendment filed 7-24-87; operative 8-23-87 (Register 87, No. 33).
6. Editorial correction of printing error in NOTE following subsection (b)(1) (Register 92, No. 24).

## § 1647. Horse Scaffolds.

(a) General. (1) Lumber for construction of scaffolded horses shall be of "selected lumber" grade.

NOTE: The lumber sizes specified are nominal sizes for which standard finished sizes may be substituted. (See Plate B-41, Appendix.)

(2) The members of horses used for scaffolds shall be securely nailed or bolted together, and well braced to prevent collapse.

(3) The distance between the bottoms of adjacent legs measured perpendicular to the ledger shall be approximately 1/2 the horse height.

(4) The shimming of horse ledgers to obtain added height is prohibited.

(5) Horses or parts which have become weak or defective shall not be used.

(6) When horse legs are extended by splicing, the joints must be butt-ended, and scabs not less than 18 inches long and of the same cross section as the leg shall be nailed on each side of the joint. As an alternative, new legs of adequate length may be installed, provided that they completely overlap the original legs and are well secured to them from top to bottom. Vertical extensions shall not be used to extend height of metal folding horses if the stability of the horse is impaired.

(7) When arranged in tiers, each horse shall be placed directly over the horse in the tier below.

(8) On all scaffolds arranged in tiers, the legs shall be nailed down or otherwise secured to the planks to prevent displacement or thrust and each tier shall be substantially cross braced.

(9) Railings meeting the requirements of Section 1620 shall be installed on all open sides and ends of work platforms 7 1/2 feet or more above the ground, floor or level underneath.

(b) Light Trades.

(1) Horses for light-trade scaffolds shall have top horizontal members or ledgers of 2-inch by 4-inch lumber or material of equivalent strength, if the distance between the leg connections is 4 feet or less. Ledgers of 2-inch by 6-inch lumber or material of equivalent strength are required if the distance between the leg connections is greater than 4 feet but does not exceed 8 feet.

If the distance between leg connections exceeds 8 feet, the ledger strength must be increased in proportion to the amount by which the 8-foot distance is exceeded.

(2) The legs of horses for light-trade scaffolds shall be 1-inch by 6-inch lumber or material of equivalent strength for horses not exceeding 4 feet in height and 2-inch by 4-inch lumber or material of equivalent strength for horses between 4 feet and 10 feet in height. Horse scaffolds shall not be constructed or arranged more than two tiers or 10 feet in height.

(c) Heavy Trades.

(1) Horses for heavy-trade scaffolds shall have top horizontal members or ledgers of 3-inch by 4-inch lumber or material of equivalent strength, if the distance between the leg connections is 4 feet or less. Ledgers of 2-inch by 6-inch lumber or material of equivalent strength are required if the distance between the leg connections is greater than 4 feet but does not exceed 8 feet. If the distance between leg connections exceeds 8 feet, the ledger strength must be increased in proportion to the amount by which the 8-foot distance is exceeded.

(2) The legs of horses for heavy-trade scaffolds shall be 1-inch by 8-inch lumber or material of equivalent strength, for horses not exceeding 4 feet in height, and 2-inch by 4-inch lumber or material of equivalent strength, for horses between 4 feet and 10 feet in height.

(d) Collapsible Types.

(1) Collapsible horses constructed of well-braced frames hinged at the top may be used in place of the specified rigid horses, if construction is such that equivalent strength is provided.

(2) Adjacent legs of a collapsible horse shall be connected near the bottom with securely attached chains, hinged brackets, or other suitable links to prevent the legs from spreading beyond the distance intended. The height of collapsible horse scaffolds shall not exceed 6 feet.

(e) Platforms.

(1) Scaffold platforms shall not be supported by single horses having a total height exceeding 10 feet. Tiered horse scaffolds shall be limited to 10 feet in height made from no more than 2 tiers of horses. All horse scaffolds shall be substantially constructed and braced both transversely and laterally.

(2) Platforms shall be not less than 20 inches wide for light trades, and 4 feet wide for bricklayers, stonemasons, stone cutters, or concrete workers. Platforms used primarily by bricklayers or stonemasons shall extend to within 5 inches of the building face upon which the work is being performed. A single 2-inch by 10-inch plank may be used for light trades work up to a height of 4 feet.

(3) Planks used for platforms shall not be less than 2 inches by 10 inches, and the distance between supports shall not exceed 10 feet for light trades and 7 feet 6 inches for heavy trades.

(4) For horse scaffolds up to a height of 6 feet, platform planks shall not be more than 2 inches apart. Platform planks on higher scaffolds shall be laid closely together. Planks shall be of such length that they overlap the supports at each end by at least 6 inches. A plank shall not overlap an unsupported end of another plank. Unsupported projecting ends of planks shall be limited to an overhang of 18 inches or less.

(5) Douglas fir plywood that is 3/4 inch thick or thicker may be used for platforms if the panels are 4 feet wide or wider and are supported on cross members at 4–foot or closer intervals for light trades and 2–foot intervals for heavy trades.

(6) Provide standard ladder or other safe, unobstructed means of access to all work platforms.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (a) and (e) filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. New subsection (a)(9) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
3. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

### § 1648. Ladder–Jack Scaffolds.

(a) Ladder–jack scaffolds shall not be used when the platform is over 16 feet above the ground. Not more than two employees shall be allowed on a scaffold of this type. The ladders shall be secured against displacement. (See Plate B–34, Appendix.)

(b) The platform shall be at least 14 inches wide consisting of ladder staging, "structural plank" or equivalent, free from damage that affects the strength. The ladders shall not be placed over 16 feet center to center, and where the platform consists of a single–dressed 2–inch by 14–inch plank, the spacing shall not be greater than 12 feet. Both metal and wood platform planks shall overlap the bearing surface by at least 12 inches.

(c) Drop lines of at least 3/4–inch diameter Manila rope or other rope of equivalent diameter and strength shall hang from secure overhead anchorages where the working platform is 7 1/2 feet high or more. An independently anchored line shall be provided for and used by each employee in accordance with the provisions of Article 24 of the Construction Safety Orders.

(d) All ladders used in connection with ladder jack scaffolds shall be heavy–duty ladders and shall be designed and constructed in accordance with the General Industry Safety Orders, Sections 3278 and 3279. Job–built ladders shall not be used for this purpose.

(e) The ladder jack shall be so designed and constructed that it will bear on the side rails in addition to the ladder rungs, or if bearing on rungs only, the bearing area shall be at least 10 inches on each rung.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment of subsection (b) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
3. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

### § 1649. Float Scaffolds.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Editorial correction in subsection (a)(5) (Register 70, No. 48).
2. Amendment of subsection (a)(4) filed 7–8–85; effective thirtieth day thereafter (Register 85, No. 28).
3. Renumbering and amendment of Section 1649 to Section 1663 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

### § 1650. Needle–Beam Scaffold.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Renumbering and amendment of Section 1650 to Section 1664 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

### § 1651. Boatswains' Chairs.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Renumbering and amendment of Section 1651 to Section 1662 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

### § 1652. Staging Supported by Catenary or Horizontal Wire Ropes.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of Section 1652 to Section 1666 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

### § 1653. Bricklayers' Square Scaffolds.

(a) The squares shall not exceed 5 feet in width and 5 feet in height.

(b) Members shall be not less than those specified in the Schedule below: (See Plate B–32, Appendix)

Minimum Dimensions for
Bricklayers' Square Scaffold Members

| *Members* | *Dimensions* |
|---|---|
| Ledgers or horizontal members | 2 x 6 in. |
| Legs | 2 x 6 in. |
| Braces at corners | 1 x 6 in. |
| Braces diagonally from center frame | 1 x 8 in. |

(c) The squares shall be reinforced on both sides of each corner with 1– x 6–inch gusset pieces. They shall also have diagonal braces 1 x 8 inches on both sides running from center to center of each member, or other means to secure equivalent strength and rigidity.

(d) The squares shall be set not more than 5 feet apart for medium duty scaffolds, and not more than 8 feet apart for light duty scaffolds. Bracing, 1 x 8 inches, extending from the bottom of each square to the top of the next square, shall be provided on both front and rear sides of the scaffold.

(e) Platform planks shall be at least 2– x 10–inch nominal size. The ends of the planks shall overlap the ledgers of the squares and each plank shall be supported by not less than three squares.

(f) Bricklayers' square scaffolds shall not exceed three tiers in height and shall be so constructed and arranged that one square shall rest directly above the other. The upper tiers shall stand on a continuous row of planks laid across the next lower tier and be nailed down or otherwise secured to prevent displacement.

(g) Scaffolds shall be level and set upon a firm foundation.

(h) For guardrailing requirements see Section 1621.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment of subsection (b) and new subsection (h) filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

### § 1654. Window Jack Scaffolds.

(a) Window jack scaffolds shall be used only for the purpose of working at the window opening through which the jack is placed. (See Plate B–35)

(b) Window jacks shall not be used to support planks placed between one window jack and another or for other elements of scaffolding.

(c) Window jack scaffolds shall be provided with guardrails unless safety belts and lanyards are provided for and used by employees. (See Section 1670.)

(d) Not more than one employee shall occupy a window jack scaffold at any one time.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New section filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment of subsections (a) and (c) filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

### § 1655. Pump Jack Scaffolds.

(a) Pump jack scaffolds shall:

(1) Be limited to a maximum working load of 500 pounds; and

(2) Have a Safety Factor of at least four times the maximum intended load.

(3) The manufactured components shall not be loaded in excess of the manufacturer's recommended limits. (See Plate B–33, Appendix)

(b) Pump jack brackets, braces, and accessories shall be fabricated from metal plates and angles. Each pump jack bracket shall have two positive gripping mechanisms to prevent any failure or slippage.

(c) The platform bracket shall be fully decked and the planking secured. Planking, or equivalent, shall conform with Section 1637.

(1) When wood scaffold planks are used as platforms, poles used for pump jacks shall not be spaced more than 10 feet center to center. When fabricated platforms are used that fully comply with all other provisions of this Order, pole spacing may exceed 10 feet center to center.

(2) Poles shall not exceed 30 feet in height.

(3) Poles shall be secured to the work wall by rigid triangular bracing, or equivalent, at the bottom, top, and other points as necessary, to provide a maximum vertical spacing of not more than 10 feet between braces. Each brace shall be capable of supporting a minimum of 225 pounds tension or compression.

(4) For the pump jack bracket to pass bracing already installed, an extra brace shall be used approximately 4 feet above the one to be passed until the original brace is reinstalled.

(d) All poles shall bear on mud sill or other adequate firm foundations.

(e) Pole lumber shall be two 2 x 4's, of Douglas fir, or equivalent, straight–grained, clear, free of cross–grain, shakes, large loose or dead knots, and other defects which might impair strength.

(f) When poles are constructed of two continuous lengths, they shall be 2 x 4's, spiked together with the seam parallel to the bracket, and with 10d common nails, no more than 12 inches center to center, staggered uniformly from opposite outside edges.

(g) If 2 x 4's are spliced to make up the pole, the splices shall be so constructed as to develop the full strength of the member.

(h) Not more than two employees shall be permitted at one time upon a pump jack scaffold between any two supports.

(i) Pump jacks scaffolds shall be provided with standard guardrails as described in Article 16 but no guardrail is required when safety belts with lanyards are provided for and used by employees.

(j) When a work bench is used at an approximate height of 42 inches, the top guardrail may be eliminated, if the work bench is fully decked, the planking secured, and is capable of withstanding 200 pounds load in any direction.

(k) Employees shall not be permitted to use a work bench as a scaffold platform.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New section filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

## Article 23. Suspended Scaffolds

### § 1658. Suspended Scaffolds—General.

(a) Hoisting machines or winches that are a part of a suspended scaffold, and are used in raising or lowering that scaffold, shall be approved.

(b) All scaffolds shall be fastened or hung so as to avoid swaying from the building or structure. Window cleaners' anchors shall not be used for this purpose. Supporting cables shall be vertical for their entire length, unless otherwise designed by a currently registered civil engineer in California. The baskets of single–unit, power–driven suspended scaffolds shall not be swayed nor shall support cables be fixed to intermediate points to change the original paths of travel.

(c) Design. All scaffold members, including related parts and rigging, shall be of adequate strength to support intended loads to which they will be subjected, without exceeding stresses established by factors of safety specified in these Orders; or if no safety factors are given, those generally accepted by the engineering profession.

(d) Ladders shall not be used as scaffold platforms, even if a horizontal working surface has been placed over the rungs. Other Orders in this Article call for the use of stage ladders, planking, or specially designed platforms for such service.

(e) Supporting Ropes. Ropes supporting scaffolds shall have a factor of safety of at least 6. They shall be inspected on each job before being used to determine if they are unsafe because of damage, wear, chemical action or similar defects. The use of repaired wire rope as suspension rope is prohibited.

(f) Manila, or other fiber or synthetic ropes shall not be used to support scaffolds upon which workers are using welding or burning equipment of any type, sandblasting equipment, or any chemical substance which may damage the rope by chemical action if splashed or spilled on the rope. Wire rope is required for the above uses. Further, the wire shall be protected against burning or a welding arc to a height of 8 feet above the platform with a rubber hose or equivalent protection.

(g) Inspection. Suspended scaffolds that are in service shall be inspected by a qualified person daily and tested as frequently as is necessary in order to provide proper maintenance. Special attention shall be given to ropes and other rigging.

(h) Suspended scaffolds shall be hung so as to avoid overlap or possible interference with movement from a scaffold above or below.

(i) When suspended scaffolds are supported by a second wire rope, employees shall fasten their lanyards to the work platform trolley line or droplines hanging from secure overhead anchorages between each pair of hangers or falls. One line shall be provided for each employee. It shall be a continuous rope in good condition and free of imperfections, serious wear, or fraying.

(j) Outrigger beams used as supports for suspended scaffold shall be tied back or secured in place and placed in saddles or otherwise positively secured against the possibility of turning or twisting. The attachments on these beams for support of suspended loads shall consist of well–anchored L–hooks fitted with 1/2 inch shackle bolts, or equivalent. See Plate B–24, Appendix.

(1) The outrigger beams and supporting system shall be capable of safely sustaining 4 times the rated load of the platform or hoist whichever is greater.

(2) When a counterweight system is used, the counterweights shall consist of solid materials such as steel or concrete (See Plate B–39, Appendix) and the tiebacks shall be at least equivalent in strength to the suspension ropes and anchored securely.

(k) Unless otherwise designed by a currently registered civil engineer in California, each suspended stage or plank–type platform shall be supported at two or more places by rigging that receives its load from only that one platform. Thus, two or more suspended scaffolds, suspended stage, or plank type platforms shall not be combined into one by bridging the distance between them with planks or similar connecting platforms.

(*l*) Metal hangers for suspended scaffolds shall be made of mild steel or equivalent material, capable of sustaining 4 times the maximum rated load.

(m) Except where overhead protection is required and which would result in a greater hazard, employees working in single or two–point suspended scaffolds, shall be required to use safety belts and lanyards attached to independently anchored droplines.

(n) Where the use of independently anchored drop line is not possible, alternate safety measures shall be used.

(o) Railing. All scaffolds or staging referred to in this Article suspended more than 7 1/2 feet from the ground or floor below shall have a standard guardrail of 2–inch by 4–inch of selected structural grade lumber, free of knots or defects, not less than finished size of 1 7/8 inches by 3 1/2 inches, or of other equally rigid materials of equivalent strength. This railing shall be not less than 36 inches nor more than 42 inches above the platform with midrails attached at half the distance from the platform floor to the top rail. All wood members shall not contain any splices that fail to provide full strength and rigidity to the wood member. When railing is longer than 10 feet between stirrups, it shall have a vertical support near the midpoint of the span.

(p) Unattended Scaffold. When a suspended scaffold is left unattended in an elevation position, it shall be securely lashed to the building and be cleared of all tools, buckets, or other moveable materials.

(q) When employees on the scaffolds are exposed to the hazards of falling objects, overhead protection not more than 9 feet above the platform shall be installed.

(r) Hooks used as a part of rigging for scaffold support shall be closed or "moused" (See Plate C–4, Appendix).

(s) Where a single outrigger beam is used, the steel shackles or clevises with which the wire ropes are attached to the outrigger beams shall be placed directly over the hoisting machines.

(t) The free end of the suspension wire ropes shall be equipped with proper size thimbles and secured by splicing or other equivalent means. Where applicable, the running ends shall be securely attached to the hoisting machines and at least four turns of wire rope shall at all times remain on the drum.

(u) Multi–level platforms and suspended scaffolds with overhead protection shall be equipped with additional independent lines equivalent in strength to the suspension ropes to support the units if the primary suspension system fails. These additional independent lines shall be tied to a structural member other than the primary suspension member, capable of supporting the resulting suspended load imposed. (See Plate B–42, Appendix.)

(v) Gasoline–powered equipment and hoists shall not be located on suspension scaffolds.

(w) Devices whose sole function is to provide emergency escape and rescue shall not be used as working platforms. This provision does not preclude the use of systems which are designed to function both as suspension scaffolds and emergency systems.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3 and 7152, Labor Code.

HISTORY

1. Editorial correction in subsection (i) (Register 70, No. 48).
2. Amendment of subsection (a) and (b) and new subsection (k) filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
3. Amendment of subsection (c) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
4. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
5. Amendment of subsection (e) and new subsections (v) and (w) filed 4–6–2001; operative 5–6–2001 (Register 2001, No. 14).

## § 1659. Bricklayers' or Masons' Suspended Scaffolds.

NOTE: Stone setters' adjustable multiple–point suspended scaffolds shall also be constructed in accordance with this Order. See Plate B–26, Appendix.

(a) Each outrigger shall be equal in strength to at least a standard 7–inch, 15.3–pound steel at least 15 feet long. It shall not project more than 6 feet 6 inches beyond the bearing point and it shall be supported laterally at or near its fulcrum point. Where the overhang exceeds 6 feet 6 inches, thrustouts shall be composed of stronger beams or multiple beams and be installed under the supervision of a person who is capable of securing a safe installation. Outriggers shall be securely fastened to the structure by the equivalent of "U" bolts and anchor plates, washers, and nuts. All beams shall be set with their webs vertical, and they shall rest on wood bearing blocks. A stop bolt shall be placed at the outer end of the outrigger to prevent suspension rope from slipping off.

(b) The platform shall be suspended by wire ropes capable of supporting at least 6 times the intended load, properly secured to the outriggers and to each end of the bolster (putlog), or to hoisting machines.

(c) Bolsters not more than 4 1/2 feet long between supports may be of wood, provided they are equal in strength to 4–inch by 6–inch "selected lumber" grade, free from damage that affects the strength.

(d) The bolsters and outriggers shall be spaced not more than 8 feet center to center.

(e) Platform Width. The platform shall be not less than 4 feet wide and made of 2–inch by 10–inch or larger "selected lumber" laid closely together and adequately secured to prevent them from slipping, tipping, or collapsing.

(f) The scaffold shall be as close to the wall as reasonably possible, but not more than 6 inches from the wall.

(g) When employees are at work on the scaffold and an overhead hazard exists, overhead protection shall be provided on the scaffold, not more than 9 feet above the platform, consisting of 2–inch planking, or material of equivalent strength, laid tight, and extending not less than the width of the scaffold.

(h) The scaffold shall be capable of sustaining a working load of 50 pounds per square foot and shall not be loaded in excess of that figure.

EXCEPTION: When the scaffold is designed for loads in excess of 50 pounds per square foot by a Civil Engineer currently registered in California.

(i) The use of fiber rope is prohibited.

(j) Toeboards and side screens shall be installed in accordance with the applicable Sections of Article 16.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Editorial correction in subsection (a) (Register 70, No. 48).
2. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
3. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

## § 1660. Suspended Scaffolds for Loads of 425 Pounds or Less.

(a) Only one employee for each fall or hanger shall be allowed on this type of suspended scaffold. (See Plates B–24, B–26, B–26–a and B–27–a, Appendix).

EXCEPTION: Single, power–driven units described in Section 1667.

(b) Stirrups or slings shall be made of wire rope of at least 9,000 pounds breaking strength, or of solid round or square mild steel (reinforcing steel shall not be used) not less than 3/4 inch dimension, forged or welded into one piece. Loops in wire rope slings for the use of bolsters shall be spliced. The top loop shall have a galvanized thimble fastened in place with a clip.

(c) Bolsters shall be 2–inch by 4–inch "selected lumber," or stronger material, placed so that the 4–inch sides are vertical. An iron or steel bolt 6 inches long and 3/4 inch in diameter shall be fastened through wooden bolsters at right angles to same not nearer than 3 inches to the end to prevent sling from accidentally slipping off the end of bolster.

(d) Scaffold platforms shall be at least 14 inches wide. Planks of dressed 2–inch lumber shall consist of "structural plank" free from damage affecting its strength. Where platforms are composed of two 2–inch by 10–inch or two 2–inch by 12–inch dressed planks, side by side, they shall be firmly cleated together so as to act as a unit. Maximum platform width shall be 36 inches.

(e) The span between hangers or falls shall not be more than 10 feet when the planks are composed of two 2–inch by 10–inch planks or more than 12 feet when composed of two 2–inch by 12–inch planks as permitted in Subsection 1660 (d). The span between hangers or falls when being used with patented–type planks shall not exceed the manufacturer's specifications. The platform shall not extend beyond the hangers more than 18 inches. A bar or other effective means shall be securely fastened at each end of the platform to prevent it from slipping off the hanger.

(f) Ladder–Type and Needle Beam–Type Platforms.

(1) Platforms placed in service after April 18, 1999 shall comply with the American National Standard (ANSI) Scaffolding–Safety Requirements, A10.8–1988, which is hereby incorporated by reference. Platforms placed in service on or before April 18, 1999 shall comply with ANSI A10.8–1977, Safety Requirements for Scaffolding, which is hereby incorporated by reference.

(2) Light metal–type platforms shall be approved.

(g) Each employee shall be provided with and use personal fall protection in accordance with the requirements of Article 24. Lanyards shall be securely attached to substantial members of the structure (not scaffold), or to securely rigged lines, which will safely suspend the employee in case of a fall. In order to keep the lanyard continuously attached, with a minimum of slack, to a fixed structure, the attachment point of the lanyard shall be appropriately changed as the work progresses.

(h) Hooks supporting scaffolds or stagings shall be made of mild steel (reinforcing steel shall not be used), free from flaws or other imperfections. Each hook shall, if loaded to point of failure, be capable of supporting a load 4 times that to which it will be subjected in service. The expected load per hook in service shall include its share (normally half) of the total scaffold and rigging weight plus the total weight of employees and movable tools or equipment, which shall never be considered as less than 500 pounds. All hooks shall be provided with rings for tie–back service. The ring should be fitted through a hole in the hook not more than 5 inches from the hook point. Hooks shall be kept clean at all times.

Each hook shall be tied back to a substantial object on the roof with at least a 3/4–inch diameter Manila rope or equivalent.

(i) Where the rope blocks supporting scaffolds or boatswains' chairs are not attached directly to hooks, the extension from the top block to the support shall be wire rope at least 1/2–inch in diameter, or equivalent, and sufficient protection shall be provided to prevent this wire rope from chafing.

The sheaves of all blocks, consisting of at least one double and one single block, shall fit the size and type of rope used.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Editorial correction in subsection (k) (Register 70, No. 48).
2. Amendment of subsection (g) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
3. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
4. Amendment of subsection (a) filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
5. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
6. Amendment of subsection (g) filed 7–2–98; operative 8–1–98 (Register 98, No. 27).
7. Amendment of subsection (f)(1) filed 3–19–99; operative 4–18–99 (Register 99, No. 12).

## § 1661. Suspended Scaffolds for Loads Between 425 and 1000 Pounds.

(a) Suspended scaffolds providing all of the safety features required by Orders 1658 and 1660 may be used to support as much as 1,000 pounds if the platform and other components are designed and constructed to carry such a live load without exceeding allowable working stresses.

(b) Suspended scaffolds in this load range which are used by cement masons shall have platforms at least 24 inches wide.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

## § 1662. Boatswains' Chairs.

(a) Persons shall be trained and/or experienced in the use of boatswains' chairs before being permitted to use such equipment.

(b) When a boatswains' chair is suspended over an area traversed by employees, pedestrians or vehicular traffic, the ground area immediately below shall be effectively blocked by barricades, or an attendant shall be stationed to keep the area clear. Warnings signs shall also be posted below.

(c) An employee using a boatswains' chair shall wear a safety belt with attached lanyard secured to a separate drop line or other means affording equivalent safety.

(d) Rope attachment to a block shall be by a thimble and splice.

(e) Hooks shall be provided with a means to prevent accidental disengagement or a shackle shall be used in place of a hook.

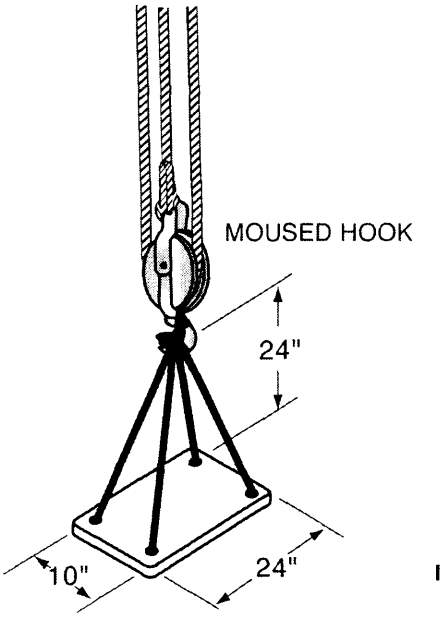
(f) Each double block of luff (or watch) tackle shall be branded or otherwise clearly marked so as to indicate the fully extended length in feet from block to block. A knot or splice shall be made in the end of the line to prevent it from running through the block.

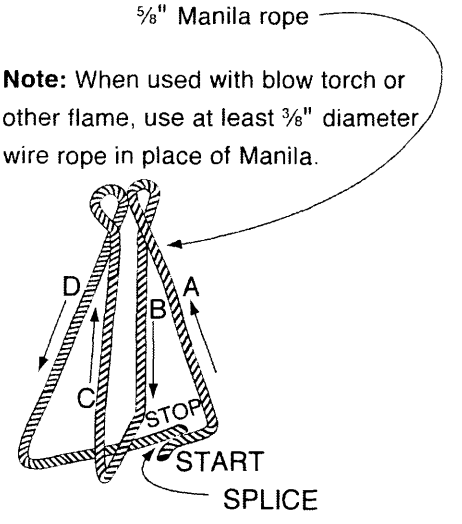
(g) Thimbles shall not be used where the chair connects to the hook.

(h) Tackle shall consist of rope equivalent in strength to at least 5/8 inch rope of first grade Manila as well as properly–sized blocks.

(i) The chair shall be suspended from its four corners by means of rope slings. It shall have a seat not less than 24 inches long by 10 inches wide and, if of soft wood, 2 inches thick (1 1/8 inches if of oak or ash). It shall be reinforced across the full width by cleats securely fastened to each end. The seat may be constructed of material other than wood, provided the material used is equivalent in strength to 2 inches of soft wood or 1 1/8 inches of oak or ash. If constructed of material of equivalent strength, cleats across the full width of the seat shall be provided unless structural analysis indicates that they are not necessary. Other design and construction of equivalent safety and strength may be substituted.

(j) Boatswains' chairs with fiber rope slings shall not be used to support an employee with welding, burning torch, sandblasting equipment, or chemicals harmful to fiber rope. In such cases, the slings shall be at least 3/8 inch wire rope, or equivalent. Further, the wire rope shall be protected against burning or welding arc by covering with a rubber hose or other equally effective means.




**Illustrating Reeving of Rope**

(k) Fiber rope seat slings shall be of 5/8 inch Manila rope, or equivalent, reeved through the four seat holes so as to cross each other on the underside of the seat.

(*l*) Boatswains' chairs, their supports and all accessories shall be capable of supporting, without failure, at least 4 times the maximum load.

(m) Parapet or cornice hooks or clamps used to support chairs shall be provided with rings for tie–back use.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 6).
2. Amendment of subsection (b) filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
3. Renumbering and amendment of former Section 1662 to Section 1667, and renumbering and amendment of Section 1651 to Section 1662 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
4. Change without regulatory effect amending "Moused Hook" graphic in subsection (j) filed 6–25–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 26).
5. Change without regulatory effect repealing and adopting new illustration within subsection (j) filed 5–19–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 21).

### § 1663. Float Scaffolds.

(a) Scaffolds of this type are to support not more than three employees and light tools, such as those needed for riveting, bolting, and welding. They shall be constructed as follows, unless substitute designs and materials provide equivalent strength, stability, and safety (See B–38, Appendix).

(1) The platform shall be not less then 3 feet wide and 6 feet long, made of 3/4 inch plywood, equivalent to Douglas Fir Plywood Association Grade A–A Exterior.

(2) Under the platform, there shall be 2 supporting bearers made from 2–inch by 4–inch "selected lumber," or better. They shall be free of knots or other flaws and project 6 inches beyond the platform on both sides. The ends of the platform shall extend about 6 inches beyond the outer edges of the bearers. Each bearer shall be fastened to the platform by at least two 1/2 inch–diameter bolts.

(3) An edging of wood not less than 3/4 inch by 1 1/2 inches, or equivalent, shall be placed around all sides of the platform to prevent tools from rolling off.

(4) Supporting ropes shall be 1–inch–diameter Manila rope, or equivalent, free from deterioration, chemical damage, flaws, or other imperfections. Rope connections shall be such that the platform cannot shift or slip. If two ropes are used with each float, they shall be arranged so as to provide four ends which are to be securely fastened to an overhead support. Each of the two supporting ropes shall be hitched around one end of a bearer and pass under the platforms to the other end of the bearer where it is hitched again, leaving sufficient rope at each end for the supporting ties.

(5) Each employee working from a float scaffold shall be provided with and use fall protection in accordance with the requirements of Article 24.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Renumbering and amendment of former Section 1663 to Section 1665, and renumbering and amendment of Section 1649 to Section 1663 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
3. Amendment of subsection (a)(5) filed 7–2–98; operative 8–1–98 (Register 98, No. 27).

### § 1664. Needle–Beam Scaffold.

(a) Needle–beam scaffolds shall be designed with a factor of safety of at least 4, to support the loads to be imposed, but in no case shall the strength or quality be less than required by the following specifications. (See B–37, Appendix)

(1) Wood needle beams shall be not less than 4 inches by 6 inches in cross section, if the distance between supports does not exceed 10 feet. Larger beams are required for spans in excess of 10 feet, and in all cases they shall be placed with the greater dimension vertical. They shall be "selected lumber," or equivalent, straight–grained, and free of knots or other defects. Other materials or types may be used if of equivalent strength and rigidity.

(2) Wood needle beams shall be made from one piece of material without splices or laminated joints. Laminated wood beams, manufactured of good quality, glued members, subjected to proper bonding pressure, may along with other materials be used if of equivalent strength.

(3) Wood needle beams shall not be painted in such a manner as to hide the grain structure. They may be coated with linseed oil or other transparent coating.

(4) Ropes used for the support of needle beams shall be not less than 1 1/4–inch diameter Manila rope, or equivalent, free from flaws, deterioration, chemical damage, or other imperfections. C–clamps or open hooks shall not be used for support of needle beams or needle–beam ropes.

(5) The ropes shall be attached to the needle beams by a scaffold hitch, or some other equally effective method, at a point not less than 1 foot from the end of the beam. Ropes shall be so secured to the beams or girders as to prevent tipping or slipping of either the beam or the scaffold. When the rope attachment is within 2 feet of beam end, bolt or cleat shall be attached or other means taken to prevent rope from coming off beam.

(6) Planks making up platforms on needle beams shall not be less than 2 inches by 10 inches and not have more than a 10 foot span. All planks shall be secured by suitable cleats or drop bolts to prevent slipping, tipping, or collapsing, with special attention for those planks that are on the beam overhang outside the rope attachment. When planks are in an inclined position of 5 percent or more, they shall be provided with cleats on the working surface at least 1 3/4 inches by 2 inches in cross section, spaced not more than 16 inches apart.

(7) Platforms used for riveting or other work requiring similar tools shall be not less than 36 inches wide when used on exterior of structures, and not less than 30 inches wide for interior work.

(8) Needle-beam platforms that are used for rivet heaters shall be not less than 6 feet wide and 10 feet long, with planks laid close together, and some provision shall be made to prevent materials or tools from rolling off edges.

(9) Where the supports for needle beams are fixed members rather than suspension ropes, positive means shall be taken to prevent the beams from turning or rotating to a position where the strength is reduced.

(10) All unattached tools, bolts, and nuts used on needle beam scaffolds shall be kept in suitable containers, properly secured.

(11) If one end of a needle beam scaffold platform rests on a permanent structural section, all applicable sections of this Article and Article 23 shall be observed.

(12) Each employee working on a needle beam scaffold shall be provided with and use personal fall protection in accordance with the requirements of Article 24 or by a safety net rigged as provided in Section 1671.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of former Section 1650 to Section 1664 filed 7-24-87; operative 8-23-87 (Register 87, No. 33).
2. Amendment of subsection (a)(12) filed 7-2-98; operative 8-1-98 (Register 98, No. 27).

## § 1665. Interior Hung Scaffolds.

(a) An interior hung scaffold shall be hung or suspended from the roof structure or ceiling beams.

(b) The suspension rope shall be wrapped at least twice around the supporting members and twice around the ledgers of the scaffold, with each end of the wire rope secured by at least three standard wire-rope clips properly installed.

(c) For hanging wood scaffolds, the following minimum nominal size material shall be used:

(1) Supporting ledgers 2 x 10 inches on edge;

(2) Planking 2 x 10 inches, with maximum span 7 feet for heavy duty and 10 feet for light duty or medium duty.

(d) Steel tube and coupler members may be used for hanging scaffolds with both types of scaffold designed to sustain a uniform distributed working load up to heavy duty scaffold loads with a safety factor of four.

(e) When a hanging scaffold is supported by means of wire rope, it shall be attached with a thimble to a 1/2-inch shackle or bolt of not less than 1/2-inch diameter. The shackle shall be secured by means of a stop bolt 4 inches from the end of the beam or ledger. Wire rope shall not be wrapped around either member. See Plate C-2, Appendix.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of former Section 1663 to Section 1665 filed 7-24-87; operative 8-23-87 (Register 87, No. 33).

## § 1666. Staging Supported by Catenary or Horizontal Wire Ropes.

(a) Staging supported by wire rope shall have hook-shaped stops on each end of staging members so as to prevent them from slipping off the wire ropes. These hooks shall be so placed that they will also tend to prevent the staging members from falling if one wire rope breaks. Planks shall be at least 14 inches wide and consist of "structural plank" or the equivalent.

(b) Wire ropes shall not be tightened to the extent that the application of a scaffold load may overstress them.

NOTE: It is suggested that a hanger or set of falls be used every 50 feet to pick up the sag of the wire rope. Cables shall be continuous without splices between anchors.

(c) A safety factor of at least 6 shall be used in determining the size of wire rope to be used.

(d) The wire rope manufacturer's recommendations with respect to the number and spacing of clamps shall be followed. The clamps shall be placed with the "U" on the dead end. See Plate C-2, Appendix.

(e) Standard guardrail shall be installed to protect all open sides and ends of staging or safety nets shall be installed.

In lieu of guardrails or safety nets, safety belts and lanyards shall be used, provided the lanyard is tied off to the structure or to a separate cable for this purpose. (See Article 24 of the Construction Safety Orders.)

(f) A safe means of access and egress shall be provided to the stage at all times.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of former Section 1652 to Section 1666 filed 7-24-87; operative 8-23-87 (Register 87, No. 33).

## § 1667. Suspended, Power-Driven Scaffolds.

NOTE: For additional details relating to exterior building maintenance and window cleaning operations see Articles 5 and 6 of the General Industry Safety Orders.

[The next page is 231.]

(a) Powered scaffold platforms, not required to be completely railed, such as those supported by 2 or more hoisting units, shall at least have a protective railing, or equivalent, on all open sides and ends. The railing shall be not less than 36 inches nor more than 42 inches high, and it shall be capable of supporting a 200–pound concentrated load without permanent deflection.

(b) Loading. The total load on any 1 power unit shall not exceed the rated working capacity. If a unit is to support 500 pounds or more, special attention shall be given in advance to eliminate the possibility that the staging, hooks, shackles, parapet walls, and other load–carrying items will be overstressed. The total allowable load on stage ladders of the type described in Section 1660(f) shall not exceed 425 pounds.

(c) Wire Rope. Powered scaffolds shall be supported by wire rope providing a safety factor of 6 or more. It shall be 6 by 19 or 6 by 37 hemp center construction or better, not less than 5/16 inch in diameter, or with a breaking strength of not less than 6,000 pounds.

(d) Platforms shall not be less than 20 inches wide and shall be provided with a guardrail as specified in Section 1658(o). Platforms shall be designed to support the loads to be imposed without exceeding allowable working stresses established by recognized engineering practice.

(e) Safety Devices for Electric–Powered Unit.

(1) Wiring. All wiring including supply cords shall conform to the Electrical Safety Orders.

(2) Electrical Devices. All electrical devices, such as control switches, shall conform to the Electrical Safety Orders.

(3) Load Release. A hand–operated release mechanism to allow unit to descend faster than normal speed is prohibited.

(f) Safety Devices for Air–Powered Unit.

(1) Control Valve. Control valve shall be a nonlocking dead–man–control type. A shutoff valve shall be installed ahead of the control valve for the purpose of shutting off air when employees leave the stage.

(2) Load Release. A hand–operated release mechanism to allow unit to descend faster than normal speed is prohibited.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of Section 1662 to Section 1667 filed 7–24–87; operative 8–2–87 (Register 87, No. 33).

## Article 24. Fall Protection

### § 1669. General.

(a) When work is performed from thrustouts or similar locations, such as trusses, beams, purlins, or plates of 4–inch nominal width, or greater, at elevations exceeding 15 feet above ground, water surface, or floor level below and where temporary guardrail protection is impracticable, employees shall be required to use approved personal fall protection system in accordance with Section 1670.

(b) When requirements in subsection (a) are impractical, approved safety nets shall be used in accordance with Section 1671.

(c) When the work is of short duration (i.e., non–repetitive) and limited exposure and the hazards involved in rigging and installing the safety devices required by this Article equals or exceeds the hazards involved in the actual construction, these provisions may be temporarily suspended, provided adequate risk control is recognized and maintained under immediate, competent supervision.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Editorial correction in subsection (a) Note (Register 70, No. 48).
2. Amendment filed 6–2–87; operative 7–2–87 (Register 87, No. 24).
3. Amendment of article heading and amendment of subsections (a) and (c) filed 7–30–97; operative 8–29–97 (Register 97, No. 31).

### § 1670. Personal Fall Arrest Systems, Personal Fall Restraint Systems and Positioning Devices.

(a) Approved personal fall arrest, personal fall restraint or positioning systems shall be worn by those employees whose work exposes them to falling in excess of 7 1/2 feet from the perimeter of a structure, unprotected sides and edges, leading edges, through shaftways and openings, sloped roof surfaces steeper than 7:12, or other sloped surfaces steeper than 40 degrees not otherwise adequately protected under the provisions of these Orders.

NOTE: (1) Requirements relating to fall protection for employees working at elevated locations on poles, towers and other structures are provided in Section 2940.6(b) and (c) of the High Voltage Electrical Safety Orders.
(2) Requirements relating to fall protection for employees working on poles, towers, or similar structures are provided in Section 8615(g) of the Telecommunications Safety Orders.
(3) Requirements relating to fall protection for employees working in roofing operations are provided in Section 1730 of the Construction Safety Orders.

(b) Personal fall arrest systems and their use shall comply with the provisions set forth below. Effective January 1, 1998, except as permitted in subsections (c) and (d), body belts shall not be used as part of a personal fall arrest system.

(1) On suspended scaffolds or similar work platforms with horizontal lifelines which may become vertical lifelines, the devices used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline.

(2) Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two.

(3) Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds.

(4) Except as provided in Section 1670(b)(5), when vertical lifelines are used, each employee shall be attached to a separate lifeline.

(5) During the construction of elevator shafts, two employees may be attached to the same lifeline in the hoistway, provided both employees are working atop a false car that is equipped with guardrails; the strength of the lifeline is 10,000 pounds [5,000 pounds per employee attached]; and all other criteria specified in this section for lifelines have been met.

(6) Lifelines shall be protected against being cut or abraded.

(7) Self–retracting lifelines and lanyards which automatically limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

(8) Self–retracting lifelines and lanyards which do not limit free fall distance to 2 feet or less, ripstitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.

(9) Ropes and straps (webbing) used in lanyards, lifelines, and strength components of body belts and body harnesses shall be made from synthetic fibers except for when they are used in conjunction with hot work where the lanyard may be exposed to damage from heat or flame.

(10) Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used as follows:

(A) as part of a complete personal fall arrest system which maintains a safety factor of at least two; and (B) under the supervision of a qualified person.

(11) Personal fall arrest systems, when stopping a fall, shall:

(A) limit maximum arresting force on an employee to 1,800 pounds when used with a body harness;

(B) be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level, and, where practicable, the anchor end of the lanyard shall be secured at a level not lower than the employee's waist;

(C) bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet; and

(D) have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet, or the free fall distance permitted by the system, whichever is less.

(12) The attachment point of the body belt shall be located in the center of the wearer's back. The attachment point of the body harness shall be

located in the center of the wearer's back near shoulder level, or above the wearer's head.

(13) Body belts, harnesses, and components shall be used only for employee protection and not to hoist materials. Body belts used in conjunction with fall restraint systems or positioning devices shall limit the maximum arresting force on an employee to 900 pounds.

(14) The employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.

(15) Personal fall arrest systems shall be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service.

(16) Body belts shall be at least one and five–eighths (1 5/8) inches wide.

(17) Personal fall arrest systems shall not be attached to hoists, except as specified in these Orders, nor shall they be attached to guardrails.

(18) When a personal fall arrest system is used at hoist areas, it shall be rigged to allow the movement of the employee only as far as the edge of the working level or working area.

(19) Each personal fall arrest system shall be inspected not less than twice annually by a competent person in accordance with the manufacturer's recommendations. The date of each inspection shall be documented.

(c) Positioning device systems.

Positioning device systems and their use shall conform to the following provisions:

(1) Positioning devices shall be rigged such that an employee cannot free fall more than 2 feet.

(2) Positioning device systems shall be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service.

(3) The use of non–locking snaphooks shall be prohibited after January 1, 1998.

(4) Anchorage points for positioning device systems shall be capable of supporting two times the intended load or 3,000 pounds, whichever is greater.

(d) Personal fall restraint.

(1) Body belts or harnesses may be used for personal fall restraint.

(2) Body belts shall be at least one and five–eights (1–5/8) inches wide.

(3) Anchorage points used for fall restraint shall be capable of supporting 4 times the intended load.

(4) Restraint protection shall be rigged to allow the movement of employees only as far as the sides of the working level or working area.

(e) Lanyards shall be secured to a substantial member of the structure or to securely rigged lines.

(f) All fall arresting, descent control, and rescue equipment shall be approved as defined in Sections 1504 and 1505 and used in accordance with the manufacturer's recommendations.

(g) If an employee's duties require horizontal movement, rigging shall be provided so that the attached lanyard will slide along with the employee. Such rigging shall be provided for all suspended staging, outdoor advertising sign platforms, floats, and all other catwalks, or walkways 7 1/2 feet or more above the ground or level beneath.

NOTE: For additional fall protection requirements during steel erection operations, see Article 29.

(h) Any lanyard, safety belt, harness, dropline, lifeline or other component subjected to in–service loading, as distinguished from static load testing, shall be immediately removed from service and shall not be used again for employee safeguarding.

NOTE: For the purpose of this subsection, "in–service loading" shall mean loading equivalent to that received in a drop test.

(i) Lifelines and anchorages shall be capable of supporting a minimum dead weight of 5000 pounds.

EXCEPTION: Retractable lanyards, controlled descent and rescue devices provided they are approved as defined in Sections 1504 and 1505.

(j) Lifelines subject to excessive fraying or rock damage shall be protected and shall have a wire rope center. Seriously worn or damaged rope shall be promptly removed from service.

(k) All safety belts, harnesses and lanyards placed in service or purchased on or before February 1, 1997, shall be labeled as meeting the requirements contained in ANSI A10.14–1975, Requirements for Safety Belts, Harnesses, Lanyards, Lifelines and Drop Lines for Construction and Industrial Use or be in compliance with the requirement stated in Subsection (*l*).

(*l*) All personal fall arrest, personal fall restraint and positioning device systems purchased or placed in service after February 1, 1997, shall be labeled as meeting the requirements contained in ANSI A10.14–1991 American National Standard for Construction and Demolition Use, or ANSI Z359.1–1992 American National Standard Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsections (d)–(h) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
3. Amendment filed 6–2–87; operative 7–2–87 (Register 87, No. 24).
4. Change without regulatory effect amending subsection (c) filed 3–26–93; operative 4–26–93 pursuant to section 100, title 1, California Code of Regulations (Register 93, No. 13).
5. Amendment of section heading and subsection (a), new subsections (b)–(d)(4), subsection relettering, and amendment of newly designated subsections (j), (k) and (*l*), and new subsection (m) filed 7–30–97; operative 8–29–97 (Register 97, No. 31).
6. Change without regulatory effect amending subsections (i), (j) and (*l*) filed 1–6–98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 2).
7. Amendment filed 11–21–2000; operative 12–21–2000 (Register 2000, No. 47).
8. Change without regulatory effect renumbering former subsections (c)(4) and (c)(5) to subsections (c)(3) and (c)(4) filed 1–17–2000 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 3).
9. Change without regulatory effect renumbering former subsection (b)(20) to subsection (b)(19) filed 2–13–2001 pursuant to section 100, title 1, California Code of Regulations (Register 2001, No. 7).
10. Amendment of subsection (b)(11)(B) filed 6–15–2005; operative 7–15–2005 (Register 2005, No. 24).

## § 1671. Safety Nets.

(a) Where the elevation is 25 feet or more above the ground, water surface, or continuous floor level below, and when the use of personal fall arrest systems, personal fall restraint systems, positioning device systems or more conventional types of protection are clearly impractical, the exterior and/or interior perimeter of the structure shall be provided with an approved safety net extending at least 8 feet horizontally from such perimeter and being positioned at a distance not to exceed 10 feet vertically below where such hazards exist, or equivalent protection provided safety nets shall extend outward from the outermost projection of the work surface as follows:

| *Vertical distance from working level to horizontal plane of net.* | *Minimum required horizontal distance of outer edge of net from the edge of working surface.* |
|---|---|
| Up to 5 feet | 8 feet |
| More than 5 feet up to 10 feet. | 10 feet |
| More than 10 feet but not to exceed 30 feet | 13 feet |

Nets shall be hung with sufficient clearance to prevent user's contact with the surfaces or structures below. Such clearances shall be determined by impact load testing.

EXCEPTION: See Section 1709(c) and 1710(k) and (*l*) for flooring requirements and nets for steel erection in tiered buildings and structures.

(b) Only one level of nets shall be required for bridge construction.

(c) Safety nets purchased on or after January 1, 1998 shall be labeled as meeting the requirements of American National Standards Institute (ANSI) A10.11–1989, American National Standard for Construction and Demolition Operations – Personnel and Debris Nets, Repair and De-

molition Operations. Safety nets purchased before January 1, 1998 shall be labeled as meeting the requirements of ANSI A10.11–1979, Safety Nets Used During Construction, Repair and Demolition Operations, or ANSI A10.11–1989.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new section filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment filed 6–2–87; operative 7–2–87 (Register 87, No. 24).
3. Amendment of subsections (a) and (c) filed 7–30–97; operative 8–29–97 (Register 97, No. 31).
4. Change without regulatory effect amending subsection (c) filed 1–6–98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 2).
5. Amendment of EXCEPTION to subsection (a) filed 5–1–2002; operative 5–1–2002. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2002, No. 18).

### § 1671.1. Fall Protection Plan.

(a) This section applies to all construction operations when it can be shown that the use of conventional fall protection is impractical or creates a greater hazard.

(1) The fall protection plan shall be prepared by a qualified person and developed specifically for the site where the construction work is being performed and the plan must be maintained up to date. The plan shall document the identity of the qualified person.

NOTE: The employer need only develop a single site fall protection plan for sites where the construction operations are essentially identical.

(2) Any changes to the fall protection plan shall be approved by a qualified person. The identity of the qualified person shall be documented.

(3) A copy of the fall protection plan with all approved changes shall be maintained at the job site.

(4) The implementation of the fall protection plan shall be under the supervision of a competent person. The plan shall document the identity of the competent person.

(5) The fall protection plan shall document the reasons why the use of conventional fall protection systems (guardrails, personal fall arrest systems, or safety nets) are infeasible or why their use would create a greater hazard.

(6) The fall protection plan shall include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection provided by conventional fall protection systems. For example, the employer shall discuss the extent to which scaffolds, ladders, or vehicle mounted work platforms can be used to provide a safer working surface and thereby reduce the hazard of falling.

(7) The fall protection plan shall identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as controlled access zones and the employer must comply with the criteria in Section 1671.2(a).

(8) Where no other alternative measure (i.e. scaffolds, ladders, vehicle mounted work platforms, etc.) has been implemented, the employer shall implement a safety monitoring system in conformance with Section 1671.2(b).

(9) The fall protection plan must include a statement which provides the name or other method of identification for each employee (i.e., job title) who is designated to work in controlled access zones. No other employees may enter controlled access zones.

(10) In the event an employee falls, or some other related, serious incident occurs (e.g., a near miss), the employer shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g., new practices, procedures, or training) and shall implement those changes to prevent similar types of falls or incidents.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 7–30–97; operative 8–29–97 (Register 97, No. 31).
2. Editorial correction of subsection (a)(10) (Register 2006, No. 17).

### § 1671.2. Controlled Access Zones and Safety Monitoring Systems.

(a) Controlled access zones.

(1) When used to control access to areas where leading edge and other operations are taking place, the controlled access zone shall be defined by a control line or by any other means that restricts access. Signs shall be posted to warn unauthorized employees to stay out of the controlled access zone.

(2) When control lines are used, they shall be erected not less than 6 feet nor more than 25 feet from the unprotected or leading edge, except when erecting precast concrete members.

(3) When erecting precast concrete members, the control line shall be erected not less than 6 feet nor more than 60 feet or half the length of the member being erected, whichever is less, from the leading edge.

(4) The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.

(5) The control line shall be connected on each side to a standard railing or wall, or securely anchored on each end.

(6) Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:

(A) Each line shall be flagged or otherwise clearly marked at not more than 6–foot intervals with high–visibility material.

(B) Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches from the working level/working area and its highest point is not more than 45 inches.

(C) Each line shall have a minimum breaking strength of 200 pounds.

(b) Safety monitoring systems.

(1) The employer shall designate a competent person to monitor the safety of other employees and the employer shall ensure that the safety monitor complies with the following requirements:

(A) The safety monitor shall be competent to recognize fall hazards;

(B) The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;

(C) The safety monitor shall be within visual sighting distance of the employee and shall always be in communication with the employee being monitored; and,

(D) The safety monitor shall not have other responsibilities which could take the monitor's attention from the monitoring function.

(2) No employee, other than an employee covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.

(3) Each employee working in a controlled access zone shall be directed to comply promptly with fall hazard warnings from safety monitors.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 7–30–97; operative 8–29–97 (Register 97, No. 31).
2. Amendment of subsection (b)(1)(C), repealer of subsection (b)(1)(D) and subsection relettering filed 11–21–2000; operative 12–21–2000 (Register 2000, No. 47).
3. Amendment of subsection (b)(1)(C) filed 9–12–2002; operative 10–12–2002 (Register 2002, No. 37).

### § 1672. Tests.

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
2. Repealer filed 6–2–87; operative 7–2–87 (Register 87, No. 24).

## Article 25. Ladders

### § 1675. General.

(a) General requirements. Except where either permanent or temporary stairways or suitable ramps or runways are provided, ladders described in this section shall be used to give safe access to all elevations.

(b) The use of ladders with broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction is prohibited. When ladders with such defects are discovered they shall be immediately

withdrawn from service. Inspection of metal ladders shall include checking for corrosion of interiors of open end hollow rungs.

(c) Manufactured portable wood ladders provided by the employer shall be labeled as being designed and manufactured in accordance with the provisions of the American National Standards Institute, A 14.1 1982, ladders – portable wood – safety requirements. Labels are not required on portable wood ladders purchased prior to July 1, 1992.

(d) Portable metal ladders shall be of strength equivalent to that of wood ladders. Manufactured portable metal ladders provided by the employer shall be labeled as being designed and manufactured in accordance with the provisions of the American National Standards Institute, A14.2 1982, ladders – portable metal – safety requirements. Labels are not required on portable metal ladders purchased prior to July 1, 1992.

(e) Portable ladder feet shall be placed on a substantial base, and the area around the top and bottom of the ladder shall be kept clear.

(f) Planks shall not be used on the top step of stepladders.

(g) Portable ladders shall be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is about one–quarter of the working length of the ladder (the length along the ladder between the foot and the top support). Ladders shall not be used in a horizontal position as platforms, runways, or scaffolds.

(h) Ladders shall not be placed in passageways, doorways, driveways, or any location where they may be displaced by activities being conducted on any other work, unless protected by barricades or guards.

(i) The side rails shall extend not less than 36 inches above the landing. When this is not practical, grab rails, which provide a secure grip for an employee moving to or from the point of access, shall be installed.

(j) Portable ladders in use shall be tied, blocked, or otherwise secured to prevent their being displaced.

(k) No one shall be permitted to stand and work on the top 3 rungs or cleats of a ladder unless there are members of the structure that provide a firm handhold or the employee is protected by a personal fall protection system (e.g., positioning device or fall restraint system) in accordance with the requirements of Article 24 (commencing with Section 1669) of the Construction Safety Orders.

(*l*) Portable metal ladders shall not be used for electrical work or where they may contact electrical conductors.

(m) All fixed ladders used in construction shall comply with the provisions of Section 3277 of the General Industry Safety Orders.

(n) Stepladders. Employees shall not stand on the topcap or the step below the topcap of a stepladder.

NOTE: For the purposes of subsection (n) the topcap is not a step.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (c) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. New subsections (m) and (n) filed 11–14–75; effective thirtieth day thereafter (Register 75; No. 46).
3. Amendment of subsection (h) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
4. Amendment filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).
5. Amendment of subsections (c) and (d) and new subsection (m) filed 6–1–92; operative 7–1–92 (Register 92, No. 23).
6. Amendment of subsection (k) and new subsection (n) and explanatory NOTE filed 6–16–98; operative 7–16–98 (Register 98, No. 25).

## § 1676. Job–Made Ladders.

(a) Job–made ladders shall be constructed for intended use. If a ladder is to provide the only means of access or exit from a working area for 25 or more employees, or simultaneous two–way traffic is expected, a double cleat ladder shall be installed.

NOTE: Cleats for job–made ladders are defined as crosspieces used by a person in ascending or descending a ladder. Cleats are also known as steps or rungs.

(b) Side rails, when of wood, shall be the equivalent of dressed Douglas fir "selected lumber", free from sharp edges and splinters, and shall not have knots, except for an occasional one less than 1/2–inch in diameter that appears only on the wide face and is at least 1/2–inch back from either edge.

If splicing of side rails is necessary to attain the required length, the splice shall develop the full strength of a continuous side rail of the same length.

(c) Cleats of wood shall be clear, straight–grained and absolutely free from knots of any size that appear in the narrow face. Knots appearing in the wide faces of cleats shall not exceed a diameter of 1/4–inch. Cleats shall be uniformly spaced within 1/4–inch tolerance, and not farther apart than 12 inches measured from the tops of cleats. The clear space in the plane of the cleats between the top of any cleat and an obstruction above shall be at least 4 1/2 inches.

EXCEPTION: The cleats of ladders used only by hod carriers and plaster tenders shall be uniformly spaced within 1/4–inch tolerance at not more than 9 inches measured from the tops of cleats.

(d) Double cleat ladders shall not exceed 24 feet in length.

(e) Single cleat ladders shall not exceed 30 feet in length between supports (base and top landing). If ladders are to connect different landings, or if the length required exceeds this maximum length, two or more separate ladders shall be used, offset with a platform between each ladder. Guardrails and toeboards shall be erected on the exposed sides of the platforms.

(f) The width of single cleat ladders shall be at least 15 inches, but not more than 20 inches, between rails at the top.

(g) Side rails shall be parallel or flared top to bottom by not more than one–quarter of an inch for each 2 feet of length.

(h) 2–inch by 4–inch lumber shall be used for side rails of single cleat ladders up to 16 feet long: 3–inch by 6–inch lumber shall be used for single cleat ladders from 16 to 30 feet in length.

(i) 2–inch by 4–inch lumber shall be used for side and middle rails of double cleat ladders up to 12 feet in length: 2–inch by 6–inch lumber for double cleat ladders from 12 to 24 feet in length.

(j) Cleats shall be inset into the edges of the side rails one–half inch, or filler blocks shall be used on the rails between the cleats. The cleats shall be secured to each rail with three 10d common wire nails or other fasteners of equivalent strength. Cleats shall be uniformly spaced, 12 inches top–to–top. Double–head nails shall not be used for ladder construction.

(k) Every portable ladder shall be of such material, size, and construction that it will safely carry the load to be placed thereon. Ladders which are customarily used for special purposes, such as those used for access to and additional support for overhead platforms, ladder brackets, and ladder scaffolding, shall be of such design, material, and construction that they will support all normal loads which may be imposed upon them.

NOTE: It is recognized that the stresses in ladders are of a somewhat indeterminate nature and are difficult of analysis, but when the Division has determined that ladders may not safely carry the loads placed thereon, the Division may require that they be tested according to the following:

The material, size, and construction of every portable ladder to be such that when placed at an angle obtained by moving the foot of the ladder out of the perpendicular a distance equal to 1/4 its length, it will support a vertical load of at least 200 pounds applied at the center of the middle step without imposing stresses in excess of the allowable working stresses of the material used in the ladder. The material, size, and construction of every fixed ladder to be such that it will support a vertical load of at least 200 pounds applied at the center of any step without imposing stresses in excess of the allowable safe working stresses of the materials used in the ladder.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (b) filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment of subsection (c) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
3. Amendment filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).
4. Editorial correction of subsection (k) printing error (Register 86, No. 44).
5. Amendment of subsections (a)–(c) and repealer of subsection (*l*) filed 1–3–2000; operative 2–2–2000 (Register 2000, No. 1).

## § 1677. Manufactured Ladders—Specifications and Fabrication.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering of subsections (a) and (b) to Section 1676 (k) and (l), and repealer of subsection (c) filed 1–14–86; effective thirtieth day thereafter (Register 86, No. 3).

## § 1678. Extension Ladders.

(a) Extension ladders shall not exceed 44 feet in length when extended to the limit permitted by the following lap schedule.

(b) Extension ladders shall not be fully extended but shall have the following minimum laps:

(1) Two–Section Ladders.

3 feet for ladders with working length up to 33 feet.

4 feet for ladders with working length 33 to 44 feet.

(2) Three–Section Ladders.

4 feet for each section.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

[The next page is 235.]

HISTORY
1. New NOTE filed 1-14-86; effective thirtieth day thereafter (Register 86, No. 3).

## Article 26. Saws—Power

NOTE: See General Industry Safety Orders Article 59 for regulations applying to woodworking machines.

### § 1680. Portable Circular Power Saws—Guards.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8-15-86; effective thirtieth day thereafter (Register 86, No. 40).

### § 1681. Radial Arm Saw or Horizontal Pull Saw.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer and new section filed 12-1-77; effective thirtieth day thereafter (Register 77, No. 49).
2. Amendment of subsection (d) filed 3-19-79; effective thirtieth day thereafter (Register 79, No. 11).
3. Repealer of subsection (f) filed 4-27-79; effective thirtieth day thereafter (Register 79, No. 17)
4. Repealer filed 8-15-86; effective thirtieth day thereafter (Register 86, No. 40).

### § 1682. Table Saw.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8-15-86; effective thirtieth day thereafter (Register 86, No. 40).

## Article 27. Powder-Actuated Tools

### § 1684. Tool Design Requirements.

(a) Only powder-actuated tools shall be used that:

(1) are approved for their intended use as defined in Section 1505 of these orders, or

(2) have California approval numbers.

EXCEPTION: This article does not apply to devices designed for attaching objects to soft construction materials such as wood, plaster, tar, dry wallboard, or to stud welding equipment.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer of Article 27 (Sections 1684-1692) and new Article 27 (Sections 1684-1692) filed 7-27-77; effective thirtieth day thereafter (Register 77, No. 31). For prior history, see Register 75, No. 2.
2. Repealer and new section filed 10-16-84; effective thirtieth day thereafter (Register 84, No. 42).
3. Amendment filed 4-22-98; operative 5-22-98 (Register 98, No. 17).

### § 1685. Operator and Instructor Qualifications.

(a) Operator Qualifications.

(1) The employer shall ensure that only qualified persons who carry valid operator's cards for the tools used be permitted to operate powder-actuated tools.

EXCEPTION: A person who is receiving training may be permitted to operate a powder-actuated tool when under the direct supervision of a qualified instructor.

(2) The operators' cards shall be issued either by qualified instructors who carry a valid, authorized instructor(s) card(s) issued by the tool manufacturer(s) or by persons acceptable to the Division.

(b) Instructor Qualifications.

(1) Qualified instructors shall be trained in accordance with the training requirements established by either the tool manufacturer or by the Powder Actuated Tool Manufacturers Institute (PATMI).

(2) Instructors authorized by the Division shall certify in writing to the Division that they are knowledgeable in the use, maintenance and repair of the tool(s) that is (are) acceptable to the Division and that their instructions will cover applicable safety orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer and new section filed 10-16-84; effective thirtieth day thereafter (Register 84, No. 42).

### § 1686. Approvals.

HISTORY
1. Repealer filed 10-16-84; effective thirtieth day thereafter (Register 84, No. 42).

### § 1687. Container and Label Requirements.

(a) A lockable container shall be provided and kept with each tool. The words "POWDER-ACTUATED TOOL" shall appear in plain sight on the outside of the container. The following notice shall be attached on the inside of the cover of the container:

"WARNING-POWDER-ACTUATED TOOL TO BE USED ONLY BY A QUALIFIED OPERATOR AND TO BE KEPT UNDER LOCK AND KEY WHEN NOT IN USE."

(b) Each tool shall be supplied with the following:

(1) Operator's instruction and service manual.

(2) Power load and fastener chart.

(3) Tool inspection and service record.

(4) Service tools and accessories.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment filed 10-16-84; effective thirtieth day thereafter (Register 84, No. 42).

### § 1688. Pole Tool Assemblies.

(a) Only approved pole tool assemblies shall be used by employees.

NOTE: See Appendix Plate C-37 for pole tool approval criteria.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer and new section filed 10-16-84; effective thirtieth day thereafter (Register 84, No. 42).

### § 1689. Maintenance and Storage.

(a) The tool shall be serviced and inspected for worn or damaged parts at regular intervals as recommended by the tool manufacturer. Prior to the tool being put back into use, all worn or damaged parts shall be replaced by a qualified person. A record of this inspection and service shall be noted and dated on the tool inspection record.

(b) Instruction manuals, maintenance tools and accessories supplied with the tool shall be stored in the tool container when not in use.

(c) Powder-actuated tools and power loads shall be locked in a container and stored in a safe place when not in use and shall be accessible only to authorized personnel.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New NOTE filed 10-16-84; effective thirtieth day thereafter (Register 84, No. 42).

### § 1690. Limitations of Use.

(a) The tool shall not be used in an explosive or flammable atmosphere.

(b) A loaded tool shall never be left unattended.

(c) Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, hardened steel, glass block, natural rock, hollow tile or most brick.

(d) Fasteners shall not be driven into easily penetrated or thin materials or materials of questionable resistance unless backed by a material that will prevent the fastener from passing completely through the other side.

(e) Fasteners shall not be driven closer than 1/2 inch (13 mm) from the edge of steel except for specific applications recommended by the tool manufacturer.

(f) Fasteners shall not be driven closer than 3 inches (76 mm) from the unsupported edge of masonry materials except for specific applications recommended by the tool manufacturer.

(g) Fasteners shall not be driven into concrete unless material thickness is at least three times the fastener shank penetration.

(h) Fasteners shall not be driven into any spalled area.

(i) Fasteners shall not be driven through existing holes unless a specific guide means, as recommended and supplied by the tool manufacturer, is used to assure positive alignment.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10–16–84; effective thirtieth day thereafter (Register 84, No. 42).

### § 1691. Operation.

The employer shall require that:

(a) Tools be operated in accordance with the manufacturer's instructions.

EXCEPTION: Loads and fasteners meeting Section 1691(f).

(b) Eye or face protection be worn by operators and assistants when the tool is in use.

(c) Prior to use, the operator inspect the tool to determine that it is in proper working condition in accordance with the testing methods recommended by the manufacturer of the tool.

(d) Any tool found not to be in working condition be immediately removed from service, tagged "DEFECTIVE" and not used until it has been repaired in accordance with the manufacturer's instructions.

(e) The shield, fixture, adapter, or accessory suited for the application as recommended and supplied by the manufacturer, be used.

(f) Only those fasteners and power loads recommended by the tool manufacturer for a particular tool, or those providing the same level of safety and performance, be used.

(g) Tools not be loaded until just prior to the intended firing time.

(h) If the work is interrupted after loading, then the tool shall be unloaded immediately.

(i) Neither loaded nor empty tools be pointed at any person.

(j) Hands and feet be kept clear of the open barrel end.

(k) The tool always be held perpendicular to the work surface when fastening into any material, except for specific applications recommended by the tool manufacturer.

(*l*) In the event of a misfire, the operator hold the tool firmly against the work surface for a period of 30 seconds and then follow the instructions set forth in the manufacturer's instructions.

(m) Power loads of different power levels and types be kept in separate compartments or containers.

(n) A sign at least 8 x 10 inches (20 x 25 cm), using boldface type no less than 1–inch (2.5 cm) in height, be conspicuously posted within 50 feet (15 m) of the area where the tools are being used. The sign shall bear wording similar to the following:

CAUTION
POWDER–ACTUATED TOOL IN USE

NOTE: Caution signs shall meet the requirements of Section 3340.

(o) Signs be removed promptly when no longer applicable.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (d) filed 5–8–78 as procedural and organizational; effective upon filing (Register 78, No. 18).
2. Amendment filed 10–16–84; effective thirtieth day thereafter (Register 84, No. 42).
3. Amendment of subsection (n) NOTE filed 2–5–97; operative 3–7–97 (Register 97, No. 6).

### § 1692. Power Loads.

(a) Identification of Cased Power Loads. Cased power loads shall be coded to identify power load levels by case color and power load color as specified in Table 1.

(b) Identification of Caseless Power Loads. Caseless power loads shall be coded to identify power load levels by power load color as specified in Table 1 and by configuration.

(c) Power Load Use Limitation. No power load (cased or caseless) shall be used if it will properly chamber in any existing commercially available tool and will cause a fastener to have a test velocity in excess of the maximum test velocities specified for the tool.

(d) Identification of Power Load Packages. Power load packages shall provide a visual number–color indication of the power level of the power load as specified in Table 1.

Table 1
Power Load Identification

| *Power Level* | *Color Identification* | | *Nominal Velocity (± 45 ′/s)* | *Nominal Velocity (± 14m/s)* |
|---|---|---|---|---|
| | *Case Color* | *Load Color* | | |
| 1 | Brass | Gray | 300 | 90 |
| 2 | Brass | Brown | 390 | 120 |
| 3 | Brass | Green | 480 | 145 |
| 4 | Brass | Yellow | 570 | 175 |
| 5 | Brass | Red | 660 | 200 |
| 6 | Brass | Purple | 750 | 230 |
| 7 | Nickel | Gray | 840 | 255 |
| 8 | Nickel | Brown | 930 | 285 |
| 9 | Nickel | Green | 1020 | 310 |
| 10 | Nickel | Yellow | 1110 | 340 |
| 11 | Nickel | Red | 1200 | 365 |
| 12 | Nickel | Purple | 1290 | 395 |

NOTE: The nominal velocity applies to a 3/8–inch (9 mm), 350–grain (113 carat) ballistic slug fired in a test device and has no reference to actual fastener velocity developed in any specific tool.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (c) filed 10–16–84; effective thirtieth day thereafter (Register 84, No. 42).

## Article 28. Miscellaneous Construction Tools and Equipment

### § 1693. Temporary Heating Devices.

(a) Temporary heating devices shall be of an approved type.

(b) Ventilation.

Fresh air shall be supplied in sufficient quantities to maintain the health and safety of employees. Where natural means of fresh air supply is inadequate, mechanical ventilation shall be provided.

(c) Clearance and Mounting.

(1) Temporary heating devices shall be installed to provide clearance to combustible material not less than the amount in Table A.

(2) Temporary heating devices, which are listed for installation with lesser clearances than specified in Table A, may be installed in accordance with their approval.

Table A

| *Heating Appliances* | *MINIMUM CLEARANCE (Inches)* | | |
|---|---|---|---|
| | *Sides* | *Rear* | *Chimney Connector* |
| Room heater, circulating type .... | 12 | 12 | 18 |
| Room heater, radiant–type ..... | 36 | 36 | 18 |

(3) Heaters not intended by the manufacturer for use on wood floors shall not be set directly upon them or other combustible materials. When such heaters are used, they shall rest on suitable heat insulating material or at least 1–inch concrete, or equivalent. The insulating material shall extend beyond the heater 2 feet or more in all directions.

(4) Heaters used in the vicinity of combustible tarpaulins, canvas, or similar coverings shall be located at least 10 feet from the coverings. All coverings shall be securely fastened so as to prevent action by the wind from displacing a loose covering and upsetting the heater or igniting the coverings.

(d) Stability. Heaters, when in use, shall be set horizontally level, unless otherwise permitted by the manufacturer's markings.

(e) Solid Fuel Salamanders.

Solid fuel salamanders are prohibited in buildings and on scaffolds.

(f) Oil-Fired Heaters.

(1) Flammable liquid-fired heaters shall be equipped with a primary safety control to stop the flow of fuel in the event of flame failure. Barometric or gravity oil feed shall not be considered a primary safety control.

(2) Heaters designed for barometric or gravity oil feed shall be used only with the integral tanks.

(3) Heaters specifically designed and approved for use with separate supply tanks may be directly connected for gravity feed, or an automatic pump, from a supply tank.

(g) Fire Protection.

At least a 4A:40-B:C rated fire extinguisher shall be readily available for use when temporary heating devices are used.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 10-17-75; effective thirtieth day thereafter (Register 75, No. 42).
2. Amendment of subsections (b)-(e) and (g) filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1694. Sideboom Cranes.

Sideboom cranes mounted on wheel or crawler tractors shall meet the requirements of SAE J 743 DEC80.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 2-19-75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).
3. Editorial correction of printing error (Register 89, No. 19).

### § 1695. Pneumatic Impact Tools.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10-18-77; effective thirtieth day thereafter (Register 77, No. 43).
2. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1696. Portable Compressors.

(a) When portable compressors on wheels stand unattached to other equipment, they shall be positively locked, blocked, or otherwise adequately prevented from rolling.

(b) Fans shall be guarded with a shroud or side screens.

(c) Compressed air tanks shall be drained of liquid as recommended by the manufacturer's specifications.

(d) Compressor safety valves shall be popped at least weekly.

(e) Compressed air tanks shall comply with all applicable safety orders of Article 3 of the Unfired Pressure Vessel Safety Orders, Title 8, California Code of Regulations, applying to tank design, safety devices and operating permits.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (e) filed 10-18-77; effective thirtieth day thereafter (Register 77, No. 43).
2. Amendment of subsection (c) filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).
3. Change without regulatory effect amending subsection (e) filed 10-29-97 pursuant to section 100, title 1, California Code of Regulations (Register 97, No. 44).

### § 1697. Weed Burner Pressure Hoses.

The hose on weed-burning equipment shall be of a type designed to handle the pressure and solvents used. Water hose shall not be used.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New note filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1698. Concrete and Masonry Equipment.

(a) Concrete Mixers. Concrete mixers equipped with 1-yard, or larger, loading skips shall be provided with a device to clear the skip of material. Skip clearing shall not be done by a worker standing under or near a raised skip while striking it with a hand-held implement.

(b) On concrete mixers of 1 yard capacity, or larger, guardrails of pipe or similar material shall be provided on each side of the dangerous area under the raised skip.

(c) Bull float handles, which could come in contact with energized electrical conductors, shall be constructed of nonconductive material.

(d) Concrete troweling machines—of the powered, rotating-blade type—that are guided manually shall be equipped with a control or switch that will automatically shut off the power whenever the operator's hands are removed from the equipment handles.

(e) Mortar, Plaster or Fireproofing Mixers.

(1) Grid guards on mortar, plaster or fireproofing mixers of 1 yard capacity or smaller shall have a grid opening not to exceed 16 square inches with a minimum clearance of 5 inches from the top of the grid guard to the top of the mixing paddles.

(2) All mortar, plaster or fireproofing mixers of 1 yard capacity or smaller ordered or purchased after the effective date of this regulation shall be equipped with grid guards with an opening not to exceed 16 square inches with a minimum clearance of 5 inches from the top of the grid guard to the top of the mixing paddles.

(f) Tremies. Sections of tremies and similar concrete conveyances shall be secured with wire rope in addition to the regular couplings or connections.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (d) and new subsection (e) filed 8-29-86; effective thirtieth day thereafter (Register 86, No. 35).
2. New subsection (f) filed 10-22-90; operative 11-21-90 (Register 90, No. 48).
3. Change without regulatory effect amending subsection (b) filed 6-22-98 pursuant to section 100, title 1, California Code of Regulations (Register 98, No. 26).
4. Repealer and new subsection (c) filed 10-21-99; operative 11-20-99 (Register 99, No. 43).
5. Amendment of subsections (e)(1) and (e)(2) filed 10-23-2001; operative 11-22-2001 (Register 2001, No. 43).

### § 1699. Hand Tools.

(a) Tools having mushroomed heads, split or defective handles, worn parts, or other defects that impair their strength or render them unsafe for use shall be removed from service and shall not be reissued until the necessary repairs have been made.

(b) Tools not needed for the work to be done shall not be left on scaffolds, ladders, or overhead levels. When work is being performed overhead on scaffolds, ladders, or on other surfaces, positive methods shall be used to prevent tools from falling.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New note filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1700. Application Equipment.

When air hose, water hose, electric cable, or other equipment of this type is used on staging or other elevated locations by an employee, it shall be securely fastened to a substantial anchorage independent of the employee. The anchorage shall be at or near the working level, and the hose or other equipment shall be attached at a point no more than 15 feet from the working end.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1701. Hot Pipes and Hot Surfaces.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1702. Warning Signs.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1703. Rigging Equipment.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1704. Pneumatically–Driven Nailers and Staplers.

(a) Definitions.

(1) Light–Duty Nailers and Staplers: Tools designed to only drive fasteners meeting both of these requirements:

(A) Fasteners 1–inch nominal length or shorter.

(B) Fasteners made from wire with cross sectional area less than 18 ASWG.

(2) Mode of actuation: The use of a trigger, workpiece contact and/or other operating control, separately or in some combination or sequence, to actuate the tool. Modes of actuation include "bump fire" and sequential modes.

(b) General.

(1) All pneumatically–driven nailers and staplers shall have a safety device on the muzzle to prevent the tool from operating unless the muzzle is in contact with the work surface, to prevent accidental discharge.

EXCEPTION: Light–Duty Nailers and Staplers.

(2) All pneumatically–driven nailers and staplers shall be operated and maintained in accordance with the manufacturer's operating and safety instructions.

(3) Personal protective equipment shall be utilized in accordance with Construction Safety Orders Section 1514.

(4) Operating controls shall not be removed, tampered with, altered, or otherwise disabled.

(5) Pneumatically–driven nailers and staplers shall be connected to the air supply with a safety disconnect that consists of a spring loaded shut–off valve and a positive locking mechanism to prevent the tool from becoming accidentally disconnected.

(6) Tools shall be equipped with a fitting that will discharge all compressed air in the tool at the time the fitting or hose coupling is disconnected.

(c) Pneumatically–driven nailers and staplers shall be disconnected from the air supply at the tool when:

(1) performing any maintenance or repair on the tool, or

(2) clearing a jam.

(d) On roofs sloped steeper than 7:12 the air hose shall be secured at roof level in such a manner as to provide ample, but not excessive, amounts of hose.

(e) All pneumatic hoses exceeding 1/2–inch inside diameter shall have a safety device at the source of supply or branch line to reduce pressure in case of hose failure.

(f) The employer's written Code of Safe Practices shall include provisions for the use of pneumatically–driven nailers and staplers where applicable.

(g) Training.

(1) The requirements of this Section shall apply in addition to training required by Construction Safety Orders, Section 1509, and General Industry Safety Orders, Section 3203(a)(7).

(2) Safety training shall be conducted prior to initial assignment to operate pneumatically–driven nailers or staplers.

(3) Refresher training shall be provided to the operator when:

(A) The operator has been observed using the pneumatically–driven nailer or stapler in an unsafe manner; or

(B) The operator has been involved in an accident.

(4) Safety training shall include, but not be limited to, the following elements:

(A) The employer's Code of Safe Practices for pneumatically–driven nailers or staplers.

(B) The hazards related to each mode of actuation for pneumatically–driven nailers and staplers.

(C) Hands–on training to verify that the operator understands the operating and safety instructions.

(5) Training shall be conducted by a qualified person.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 1–7–75; effective thirtieth day thereafter (Register 75, No. 2).
2. Amendment filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).
3. Amendment of section heading and section filed 10–31–2007; operative 11–30–2007 (Register 2007, No. 44).

### § 1705. Airless Spray Guns.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1706. LP–Gas Fired Space Heaters.

(a) The floor areas immediately adjacent to where such heaters are used must be kept clean and clear of combustible materials.

(b) While a building is under construction or alteration and before occupancy, not more than 60 U. S. gallons of LP–Gas shall be permitted in any one room having a floor area of 2,000 square feet or less or in any floor area of 2,000 square feet in rooms having floor areas exceeding 2,000 square feet. Under all other conditions the provisions of Section 492 (a) of the Unfired Pressure Vessel Safety Orders shall apply.

The maximum water capacity of individual containers shall be 245 pounds (nominal 30 gallons LP–Gas).

(c) No cylinders or tanks of LP–Gas shall be filled or stored in any building under construction or renovation. The cylinders shall be removed from the building and into an area at least 10 feet from any building or source of ignition when being refilled.

Container safety relief devices and regulator relief vents shall be located at least 5 feet in any direction from air openings into sealed combustion system appliances or mechanical ventilation air intakes.

(d) The valves and connections on the cylinders shall be protected by a cap or collar during transportation, storage, and handling to prevent damage to the valves and fittings, and shall be protected from damage while in use.

(e) The cylinders shall be in a position to keep the safety valve in direct communication with the vapor space in the cylinder at all times.

(f) When in use, the LPG cylinder shall be installed so that the heat from the burner will not increase temperature of the tank more than 10 degrees Fahrenheit above that ambient at the installation after 1 hour of operation of the burner at full capacity. "In use" means connected for use.

(g) Means shall be provided to prevent the cylinders from being accidentally knocked over or upset. This can be done by chaining or securing each cylinder to a column or wall or by use of a stand.

Containers, regulating equipment, manifolds, pipe, tubing, and hose shall be located to minimize exposure to high temperatures or physical damage.

(h) Adequate ventilation close to the floor must be provided so any escaping or unburnt gas is dispersed.

(i) Heaters shall be equipped with a 100 percent safety pilot, have regulation stamped LP–Gas hose and LP–Gas pressure regulator, and be in safe working order.

NOTE: The fire department having jurisdiction in the area where LP–Gas is used in this service shall be notified before LP–Gas heaters are used.

(j) Heaters shall be equipped with an approved regulator in the supply line between the fuel cylinder and the heater unit. Cylinder connectors larger than 1/2 inch pipe size shall be provided with an excess flow valve to minimize the flow of gas in the event the fuel line becomes ruptured.

(k) Regulators and low–pressure relief devices shall be rigidly attached to the cylinder valves, cylinders, supporting standards, the building walls, or otherwise rigidly secured, and shall be so installed or protected that the elements (rain, sleet, snow or ice) will not affect their operation.

(*l*) Hose shall be designed for a working pressure of at least 250 p.s.i. Design, construction, and performance of hose, and hose connections shall have their suitability determined by listing by a nationally recognized testing agency. The hose length shall be as short as practicable. Hoses shall be long enough to permit compliance with spacing provisions without kinking or straining, or causing hose to be so close to a burner as to be damaged by heat.

(m) For temporary heating, heaters (other than integral heater–container units) shall be located at least 6 feet from any LP–Gas container. This shall not prohibit the use of heaters specifically designed for attachment to the container or to a supporting standard, provided they are designed and installed so as to prevent direct or radiant heat application from the heater onto the containers. Blower and radiant type heaters shall not be directed toward any LP–Gas container within 20 feet.

(n) Container valves, connectors, regulators, manifolds, piping, and tubing shall not be used as structural supports for heaters.

(o) If two or more heater–container units, of either the integral or non-integral type, are located in an unpartitioned area on the same floor, the container or containers of each unit shall be separated from the container or containers of any other unit by at least 20 feet.

(p) When heaters are connected to containers for use in an unpartitioned area on the same floor, the total water capacity of containers, manifolded together for connection to a heater or heaters, shall not be greater than 735 pounds (nominal 300 pounds LP–Gas capacity). Such manifolds shall be separated by at least 20 feet.

(q) The storage of containers awaiting use shall comply with Section 1706(r) and Unfired Pressure Vessel Safety Orders Section 492.

(r) Storage outside of buildings, for containers awaiting use, shall be located from the nearest building or group of buildings, in accordance with the following:

| *Quantity of LP–Gas stored:* | *Distance (feet)* |
|---|---|
| 500 lbs | 0 |
| 501 to 6,000 lbs | 10 |
| 6,001 to 10,000 | 20 |
| Over 10,000 lbs | 25 |

(s) Containers shall be in a suitable ventilated enclosure or otherwise protected against tampering.

(t) Storage locations shall be provided with at least one approved portable fire extinguisher having a rating of not less than 30–BC.

[The next page is 239.]

(u) Any welding on containers on a construction site is prohibited.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10–24–75; effective thirtieth day thereafter (Register 75, No. 43).
2. Amendment of subsections (b), (c), (g), and (q) filed 1–13–87; effective thirtieth day thereafter (Register 87, No.4).

### § 1707. Power–Operated Hand Tools.

(a) Electric Power–Operated Tools. The use of electric cords for hoisting or lowering tools shall not be permitted.

(b) Pneumatic Power Tools.

(1) All hose connections including that one at the tool shall be secured by some positive means to prevent accidental disconnection unless a suitable ball check device or equivalent is provided at the air source.

(2) The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.

(3) The use of hoses for hoisting or lowering tools shall not be permitted.

(c) Hydraulic Power Tools. The manufacturer's safe operating pressures for hoses, valves, pipes, filters, and other fittings shall not be exceeded.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 1–7–75; effective thirtieth day thereafter (Register 75, No. 2).
2. Amendment filed 1–15–75 as an emergency; designated effective 2–6–75. Certificate of Compliance included (Register 75, No. 2).
3. Repealer and new section filed 2–6–76; effective thirtieth day thereafter (Register 76, No. 6).
4. Amendment filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).
5. Change without regulatory effect relettering former subsection (d) to subsection (c) (Register 87, No. 20).

### § 1708. Jacks—Lever and Ratchet, Screw, and Hydraulic.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 1–7–75; effective thirtieth day thereafter (Register 75, No. 2).
2. Amendment filed 1–15–75; designated effective 2–6–75. Certificate of Compliance included (Register 75, No. 2).
3. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

## Article 29. Erection and Construction

### § 1709. General Requirements.

(a) No building, structure, or part thereof, or any temporary support or scaffolding in connection therewith shall be loaded in excess of its designed capacity.

(b) Bracing.

(1) Trusses and beams shall be braced laterally and progressively during construction to prevent buckling or overturning.

(2) The first member shall be plumbed, connected, braced and/or guyed against shifting before succeeding members are erected and secured to it.

(3) The total system shall be adequately braced and stabilized to the foundation, to suitable anchors buried in the ground, or by other equivalent method(s).

(4) Beams, trusses and other material being lifted and placed by cranes or other hoisting apparatus shall not be released from the crane or hoisting apparatus until the person detaching the load has verified that the load has been secured or supported to prevent inadvertent movement.

(c) Wood Floor Construction.

(1) In the erection of a building having double wood floor construction, the rough flooring shall be completed as the building progresses, including the tier below the one on which floor joists are being installed.

(2) For single wood floor or other flooring systems, the floor immediately below the story where the floor joists are being installed shall be kept planked or decked over.

(d) Erection Guide for Trusses and Beams Over 25 Feet Long. The employer shall provide an erection plan and procedure prepared by a civil engineer currently registered in California which shall be followed and kept available on the job site for inspection by the Division.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering from section 1710 filed 11–1–73; effective thirtieth day thereafter (Register 73, No. 44).
2. Amendment filed 6–21–85; effective thirtieth day thereafter (Register 85, No. 25).
3. Editorial correction adding article heading (Register 91, No. 23).
4. Amendment of section heading, designation of first paragraph as subsection (a) and new subsections (b)–(d) filed 5–1–2002; operative 5–1–2002. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2002, No. 18).

### § 1710. Structural Steel Erection.

(a) Scope and application.

(1) This section sets forth requirements to protect employees from the hazards associated with steel erection activities involved in the construction, alteration, and/or repair of single and multi–story buildings, bridges, and other structures where steel erection occurs. The requirements of this section apply to employers engaged in steel erection unless otherwise specified.

EXCEPTION: This section does not cover electrical transmission towers, communication and broadcast towers, or tanks.

NOTE: Additional requirements for work on steel framed structures are contained in Article 20, Section 1635(b) of these orders.

(2) Steel erection activities include hoisting, connecting, welding, bolting, and rigging structural steel, steel joists and metal buildings; installing metal deck, siding systems, miscellaneous metals, ornamental iron and similar materials; and moving from point–to–point to perform these activities.

(3) The duties of controlling contractors under this section include the duties specified in (c)(1) & (3), (f)(2)(B), (j)(2) and (o) of this section.

(4) Effective date for the design component requirements of this section. This section contains a number of provisions that address the safety of certain structural components referred to as "component requirements." The design component requirements contained in subsections, (e)(1)(A), (f)(1), (g)(4), (g)(5), (g)(6), (h)(1)(A)1., (h)(1)(G)1., (i)(2), and (i)(5) will not apply to the project if the project was permitted, or steel erection commenced prior to the effective date of May 1, 2002.

(b) Definitions.

"Anchored bridging" means that the steel joist bridging is connected to a bridging terminus point.

"Bolted diagonal bridging" means diagonal bridging that is bolted to a steel joist or joists.

"Bridging clip" means a device that is attached to the steel joist to allow the bolting of the bridging to the steel joist.

"Bridging terminus point" means a wall, a beam, tandem joists (with all bridging installed and a horizontal truss in the plane of the top chord) or other element at an end or intermediate point(s) of a line of bridging that provides an anchor point for the steel joist bridging.

"Cold forming" means the process of using press brakes, rolls, or other methods to shape steel into desired cross sections at room temperature.

"Column" means a load–carrying vertical member that is part of the primary skeletal framing system. Columns do not include posts.

"Connector" means an employee who, working with hoisting equipment, is placing and connecting beams or other structural members.

"Constructibility" means the ability to erect structural steel members in accordance with Section 1710 without having to alter the over–all structural design.

"Construction load" (for joist erection) means any load other than the weight of the employee(s), the joists and the bridging bundle.

"Controlled Decking Zone (CDZ)" means an area established specifically for the initial placement and securing of metal decking where access to the area is restricted and work may take place without the use of a personal fall protection system when the provisions of Section 1710(n) are met.

"Controlled load lowering" means lowering a load by means of a mechanical hoist drum device that allows a hoisted load to be lowered with maximum control using the gear train or hydraulic components of the hoist mechanism. Controlled load lowering requires the use of the hoist drive motor, rather than the load hoist brake, to lower the load.

"Controlling contractor" means a prime contractor, general contractor, construction manager or any other legal entity which has the overall responsibility for the construction of the project — its planning, quality and completion.

"Critical lift" (used in Appendix C to Section 1710) means a lift that exceeds 75 percent of the rated capacity of the crane or derrick, or requires the use of more than one crane or derrick.

"Derrick floor" (working floor) means an elevated floor of a building or structure that has been designated to receive hoisted pieces of steel prior to final placement.

"Double connection" means an attachment method where the connection point is intended for two pieces of steel which share common bolts on either side of a central piece.

"Double connection seat" means a structural attachment that, during the installation of a double connection, supports the first member while the second member is connected.

"Erection bridging" means the bolted diagonal bridging that is required to be installed prior to releasing the hoisting cables from the steel joists.

"Girt" (in systems–engineered metal buildings) means a "Z" or "C" shaped member formed from sheet steel spanning between primary framing and supporting wall material.

"Metal decking" means a commercially manufactured, structural grade, cold rolled metal panel formed into a series of parallel ribs; for this section, this includes metal floor and roof decks, standing seam metal roofs, other metal roof systems and other products such as bar gratings, checker plate, expanded metal panels, and similar products. After installation and proper fastening, these decking materials serve a combination of functions including, but not limited to: a structural element designed in combination with the structure to resist, distribute and transfer loads, stiffen the structure and provide a diaphragm action; a walking/working surface; a form for concrete slabs; a support for roofing systems; and a finished floor or roof.

"Multiple lift rigging" means rigging manufactured by rigging suppliers that facilitates the attachment of up to five independent loads to the hoist rigging of a crane.

"Permanent floor" means a structurally completed floor at any level or elevation (including slab on grade).

"Post" means a structural member with a longitudinal axis that is essentially vertical, that weighs 300 pounds or less and is axially loaded (a load presses down on the top end), or is not axially loaded, but is laterally restrained by the above member. Posts typically support stair landings, wall framing, mezzanines and other substructures.

"Project structural engineer of record" means the registered, California licensed engineer responsible for the design of structural steel framing and whose seal appears on the structural contract documents.

"Purlin" (in systems–engineered metal buildings) means a "Z" or "C" shaped member formed from sheet steel spanning between primary framing and supporting roof material.

"Safety deck attachment" means an initial attachment that is used to secure an initially placed sheet of decking to keep proper alignment and bearing with structural support members.

"Shear connector" means headed steel studs, steel bars, steel lugs, and similar devices which are attached to a structural member for the purpose of achieving composite action with concrete.

"Steel erection" means the construction, alteration or repair of steel buildings, bridges and other structures, including the installation of metal decking and all planking used during the process of erection.

"Steel joist" means an open web, secondary load–carrying member of 144 feet (43.9 m) or less, designed by the manufacturer, used for the support of floors and roofs. This does not include structural steel trusses or cold–formed joists.

"Steel joist girder" means an open web, primary load–carrying member, designed by the manufacturer, used for the support of floors and roofs. This does not include structural steel trusses.

"Steel truss" means an open web member designed of structural steel components by the project structural engineer of record. For the purposes of this section, a steel truss is considered equivalent to a solid web structural member.

"Structural steel" means a steel member, or a member made of a substitute material. These members include, but are not limited to, steel joists, joist girders, purlins, columns, beams, trusses, splices, seats, metal decking, girts, and all bridging, and cold formed metal framing which is integrated with the structural steel framing of a building.

"Systems–engineered metal building" means a metal, field–assembled building system consisting of framing, roof and wall coverings. Typically, many of these components are cold–formed shapes. These individual parts are fabricated in one or more manufacturing facilities and shipped to the job site for assembly into the final structure. The engineering design of the system is normally the responsibility of the systems–engineered metal building manufacturer.

"Tank" means a container for holding gases, liquids or solids.

(c) Site layout and construction sequence.

(1) Approval to begin steel erection. Before authorizing the commencement of steel erection, the controlling contractor shall ensure that the steel erector is provided with the following written notifications:

(A) The concrete in the footings, piers and walls and the mortar in the masonry piers and walls has attained, on the basis of an approved test method of field–cured samples (i.e. appropriate ASTM standard test method), either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.

(B) Any repairs, replacements and modifications to the anchor bolts were conducted in accordance with Section 1710(f)(2).

(2) Commencement of steel erection. A steel erection contractor shall not erect steel unless it has received written notification that the concrete in the footings, piers and walls or the mortar in the masonry piers and walls has attained, on the basis of an approved test method of field–cured samples (i.e., appropriate ASTM standard test method), either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.

(3) Site layout. The controlling contractor shall ensure that the following is provided and maintained:

(A) Adequate access roads into and through the site for the safe delivery and movement of derricks, cranes, trucks, other necessary equipment, and the material to be erected and means and methods for pedestrian and vehicular control.

EXCEPTION: This requirement does not apply to roads outside of the construction site.

(B) A firm, properly graded, drained area, adequately compacted to support the intended loads, readily accessible to the work with adequate space for the safe storage of materials and the safe operation of the erector's equipment.

(4) Pre–planning of overhead hoisting operations. All hoisting operations in steel erection shall be pre–planned to ensure that the requirements of Section 1710(d)(1) are met.

(5) Site–specific erection plan. Where employers elect, due to conditions specific to the site, to develop alternate means and methods that provide employee protection in accordance with Sections 1710(d)(9), 1710(h)(1)(C) or 1710(h)(5)(D), a site–specific erection plan shall be de-

veloped by a qualified person and be available at the work site. Guidelines for establishing a site-specific erection plan are contained in Appendix C of this section.

(d) Hoisting and rigging.

(1) Working under loads.

(A) Routes for suspended loads shall be pre-planned to ensure that no employee is working below a suspended load except as necessary for:

1. Connectors making the initial connection of the steel; or

2. Riggers when hooking or unhooking of the load.

(B) When working under suspended loads, the following criteria shall be met:

1. Materials being hoisted shall be rigged to prevent unintentional displacement;

2. Hooks with self-closing safety latches or their equivalent shall be used to prevent components from slipping out of the hook; and

3. All loads shall be rigged by a qualified rigger.

(2) Multiple Lift Rigging Procedure.

(A) A multiple lift shall only be performed if the following criteria are met:

1. A multiple lift rigging assembly is used;

2. A maximum of five members are hoisted per lift;

3. Rigging procedures shall prevent hazardous contact between the structural steel members being hoisted and adjacent structures or workers;

4. Only beams and similar structural members are lifted;

5. All employees engaged in the multiple lift have been trained in these procedures in accordance with Section 1710(q)(3)(A); and

6. No crane is permitted to be used for a multiple lift where such use is contrary to the manufacturer's specifications and limitations.

(B) Components of the multiple lift rigging assembly shall be specifically designed and assembled to support the maximum capacity for the total assembly and for each individual attachment point. This capacity, certified by the manufacturer, shall be based on the manufacturer's specifications with a 5 to 1 safety factor for all components.

(C) The total load shall not exceed:

1. 75 percent of the rated capacity of the hoisting equipment specified in the hoisting equipment load charts;

2. The rigging capacity specified by the manufacturer.

(D) The multiple lift rigging assembly shall be rigged with members:

1. Attached at their center of gravity and maintained reasonably level;

2. Rigged from top down; and

3. Rigged at least 7 feet (2.1 m) apart.

(E) The members on the multiple lift rigging assembly shall be set from the bottom up.

(F) Controlled load lowering shall be used whenever the load is over the connectors.

(3) Whenever there is any doubt as to safety, the crane or derrick operator shall have the authority to stop and refuse to handle loads until safety has been assured.

(4) Metal decking bundles shall be landed on framing members so that enough support is provided to allow the bundles to be unbanded without dislodging the bundles from the supports.

(5) Temporary loads placed on a derrick floor shall be distributed over the underlying support members so as to prevent local overloading of the deck material.

(6) Bundle packaging and strapping shall not be used for hoisting unless specifically designed for that purpose.

(7) If loose items such as dunnage, flashing, or other materials are placed on the top of metal decking bundles to be hoisted, such items shall be secured to the bundles.

(8) Cranes or derricks may be used to hoist employees on a personnel platform when work under this section is being conducted, provided the provisions of General Industry Safety Orders, Section 5004 [except for subsection (c)] are met.

(9) Safety latches on hooks shall not be deactivated or made inoperable except:

(A) When a qualified rigger has determined that the hoisting and placing of purlins and single joists can be performed more safely by doing so; and

(B) When the steel erector develops and implements a site-specific erection plan that ensures the load will not travel over or expose employees in other trades to the hazards of suspended loads.

NOTE: Other applicable regulations pertaining to hoisting and rigging operations for the use of cranes and derricks in steel erection construction are contained in the General Industry Safety Orders, Group 13, Cranes and Other Hoisting Equipment.

(e) Walking/working surfaces.

(1) Shear connectors and other similar devices.

(A) Tripping hazards. Shear connectors (such as headed steel studs, steel bars or steel lugs), reinforcing bars, deformed anchors or threaded studs shall not be attached to the top flanges of beams, joists or beam attachments so that they project vertically from or horizontally across the top flange of the member until after the metal decking, or other walking/working surface, has been installed.

(B) Installation of shear connectors on composite floors, roofs and bridge decks. When shear connectors are used in construction of composite floors, roofs and bridge decks, employees shall lay out and install the shear connectors after the metal decking has been installed, using the metal decking as a working platform.

NOTE: Section 1710(n)(8) prohibits the installation of shear connectors within a controlled decking zone.

(f) Column anchorage.

(1) General requirements for erection stability.

(A) All columns shall be anchored by a minimum of 4 anchor rods (anchor bolts).

EXCEPTION: When columns are braced or guyed to provide the stability to support an eccentric load as specified in subsection (f)(1)(B) of this section.

(B) Each column anchor rod (anchor bolt) assembly, including the column-to-base plate weld and the column foundation, shall be designed to resist a minimum eccentric gravity load of 300 pounds (136.2 kg) located 18 inches (.46m) from the extreme outer face of the column in each direction at the top of the column shaft.

(C) Columns shall be set on level finished floors, pre-grouted leveling plates, leveling nuts, or shim packs which are adequate to transfer the construction loads.

(D) All columns shall be evaluated by a competent person to determine whether guying or bracing is needed; if guying or bracing is needed, it shall be installed.

(2) Repair, replacement or field modification of anchor rods (anchor bolts).

(A) Anchor rods (anchor bolts) shall not be repaired, replaced or field-modified without the approval of the project structural engineer of record.

NOTE: Minor adjustment of anchor rods (anchor bolts) that do not affect the structural integrity of anchor rods (anchor bolts) are not considered "repairs" for the purposes of this subsection.

(B) Prior to the erection of a column, the controlling contractor shall provide written notification to the steel erector if there has been any repair, replacement or modification of the anchor rods (anchor bolts) of that column.

(g) Beams and columns.

(1) During the final placing of solid web structural members, the load shall not be released from the hoisting line until the members are secured with at least two bolts per connection, of the same size and strength as shown in the erection drawings, drawn up wrench-tight or the equivalent as specified by the project structural engineer of record, except as specified in subsection (g)(3) of this section.

(2) A competent person shall determine if more than two bolts are necessary to ensure the stability of cantilevered members; if additional bolts are needed, they shall be installed.

(3) Diagonal bracing. Solid web structural members used as diagonal bracing shall be secured by at least one bolt per connection drawn up wrench-tight or the equivalent as specified by the project structural engineer of record.

(4) Double connections at columns and/or at beam webs over a column.

(A) When two structural members on opposite sides of a column web, or a beam web over a column, are connected sharing common connection holes, at least one bolt with its wrench-tight nut shall remain connected to the first member unless a shop-attached or field-attached seat or equivalent connection device is supplied with the member to secure the first member and prevent the column from being displaced (See Appendix B of this section for examples of equivalent connection devices).

(B) If a seat or equivalent device is used, the seat (or device) shall be designed to support the load during the double connection process. It shall be adequately bolted or welded to both a supporting member and the first member before the nuts on the shared bolts are removed to make the double connection.

(5) Column splices. Each column splice shall be designed to resist a minimum eccentric gravity load of 300 pounds (136.2 kg) located 18 inches (.46 m) from the extreme outer face of the column in each direction at the top of the column shaft.

(6) Perimeter columns. Perimeter columns shall not be erected unless:

(A) The perimeter columns extend a minimum of 48 inches (1.2 m) above the finished floor to permit installation of perimeter safety cables prior to erection of the next tier, except where constructibility does not allow.

(B) The perimeter columns have holes or other devices in or attached to perimeter columns at 42–45 inches (107–114 cm) above the finished floor and the midpoint between the finished floor and the top cable to permit installation of perimeter safety cables (wire rope) required by subsection (*l*)(3) of this section, except where constructibility does not allow.

(h) Open web steel joists.

(1) General.

(A) Except as provided in subsection (h)(1)(B) of this section, where steel joists are used and columns are not framed in at least two directions with solid web structural steel members, a steel joist shall be field-bolted at the column to provide lateral stability to the column during erection. For the installation of this joist:

1. A vertical stabilizer plate shall be provided on each column for steel joists. The plate shall be a minimum of 6 inch by 6 inch (152 mm by 152 mm) and shall extend at least 3 inches (76 mm) below the bottom chord of the joist with a 13/16 inch (21 mm) hole to provide an attachment point for guying or plumbing cables.

2. The bottom chords of steel joists at columns shall be stabilized to prevent rotation during erection.

3. Hoisting cables shall not be released until the seat at each end of the steel joist is field-bolted, and each end of the bottom chord is restrained by the column stabilizer plate.

(B) Where constructibility does not allow a steel joist to be installed at the column:

1. An alternate means of stabilizing joists shall be installed on both sides near the column and shall:

a. Provide stability equivalent to subsection (h)(1)(A) of this section;

b. be designed by a qualified person;

c. be shop installed; and

d. be included in the erection drawings.

2. Hoisting cables shall not be released until the seat at each end of the steel joist is field-bolted and the joist is stabilized.

(C) Where steel joists at or near columns span more than 60 feet (18.3 m), the joists shall be set in tandem with all bridging installed unless an alternative method of erection, which provides equivalent stability to the steel joist, is designed by a qualified person and is included in the site-specific erection plan.

(D) A steel joist or steel joist girder shall not be placed on any support structure unless such structure is stabilized.

(E) When steel joist(s) are landed on a structure, they shall be secured to prevent unintentional displacement prior to installation.

(F) No modification that affects the strength of a steel joist or steel joist girder shall be made without the approval of the project structural engineer of record.

(G) Field-bolted joists.

1. Except for steel joists that have been pre-assembled into panels, connections of individual steel joists to steel structures in bays of 40 feet (12.2 m) or more shall be fabricated to allow for field bolting during erection.

2. These connections shall be field-bolted unless constructibility does not allow.

(H) Steel joists and steel joist girders shall not be used as anchorage points for a fall arrest system unless written approval to do so is obtained from a qualified person.

(I) A bridging terminus point shall be established before bridging is installed. (See Appendix A of this section.)

(2) Attachment of steel joists and steel joist girders.

(A) Each end of "K" series steel joists shall be attached to the support structure with a minimum of two 1/8-inch (3 mm) fillet welds 1 inch (25 mm) long or with two 1/2-inch (13 mm) bolts, or the equivalent.

(B) Each end of "LH" and "DLH" series steel joists and steel joist girders shall be attached to the support structure with a minimum of two 1/4-inch (6 mm) fillet welds 2 inches (51 mm) long, or with two 3/4-inch (19 mm) bolts, or the equivalent.

(C) Except as provided in subsection (h)(2)(D) of this section, each steel joist shall be attached to the support structure, at least at one end on both sides of the seat, immediately upon placement in the final erection position and before additional joists are placed.

(D) Panels that have been pre-assembled from steel joists with bridging shall be attached to the structure at each corner before the hoisting cables are released.

(3) Erection of steel joists.

(A) Both sides of the seat of one end of each steel joist that requires bridging under Tables A and B shall be attached to the support structure before hoisting cables are released.

(B) For joists over 60 feet, both ends of the joist shall be attached as specified in subsection (h)(2) of this section and the provisions of subsection (h)(4) of this section met before the hoisting cables are released.

(C) On steel joists that do not require erection bridging under Tables A and B, only one employee shall be allowed on the joist until all bridging is installed and anchored.

(D) Employees shall not be allowed on steel joists where the span of the steel joist is equal to or greater than the span shown in Tables A and B except in accordance with subsection (h)(4) of this section.

(E) When permanent bridging terminus points cannot be used during erection, additional temporary bridging terminus points are required to provide stability. (See Appendix A of this section.)

Table A.
Erection Bridging for Short Span Joists

| *Joist* | *Span — Feet* |
|---|---|
| 8K1 | NM |
| 10K1 | NM |
| 12K1 | 23–0 |
| 12K3 | NM |
| 12K5 | NM |
| 14K1 | 27–0 |
| 14K3 | NM |
| 14K4 | NM |
| 14K6 | NM |
| 16K2 | 29–0 |
| 16K3 | 30–0 |
| 16K4 | 32–0 |
| 16K5 | 32–0 |
| 16K6 | NM |
| 16K7 | NM |
| 16K9 | NM |
| 18K3 | 31–0 |
| 18K4 | 32–0 |
| 18K5 | 33–0 |
| 18K6 | 35–0 |
| 18K7 | NM |
| 18K9 | NM |

| *Joist* | *Span — Feet* |
|---|---|
| 18K10 | NM |
| 20K3 | 32–0 |
| 20K4 | 34–0 |
| 20K5 | 34–0 |
| 20K6 | 36–0 |
| 20K7 | 39–0 |
| 20K9 | 39–0 |
| 20K10 | NM |
| 22K4 | 34–0 |
| 22K5 | 35–0 |
| 22K6 | 36–0 |
| 22K7 | 40–0 |
| 22K9 | 40–0 |
| 22K10 | NM |
| 22K11 | NM |
| 24K4 | 36–0 |
| 24K5 | 38–0 |
| 24K6 | 39–0 |
| 24K7 | 43–0 |
| 24K8 | 43–0 |
| 24K9 | 44–0 |
| 24K10 | NM |
| 24K12 | NM |
| 26K5 | 38–0 |
| 26K6 | 39–0 |
| 26K7 | 43–0 |
| 26K8 | 44–0 |
| 26K9 | 44–0 |
| 26K10 | 49–0 |
| 26K12 | NM |
| 28K6 | 40–0 |
| 28K7 | 43–0 |
| 28K8 | 44–0 |
| 28K9 | 45–0 |
| 28K10 | 49–0 |
| 28K12 | 53–0 |
| 30K7 | 44–0 |
| 30K8 | 45–0 |
| 30K9 | 45–0 |
| 30K10 | 50–0 |
| 30K11 | 52–0 |
| 30K12 | 54–0 |
| 10KCS1 | NM |
| 10KCS2 | NM |
| 10KCS3 | NM |
| 12KCS1 | NM |
| 12KCS2 | NM |
| 12KCS3 | NM |
| 14KCS1 | NM |
| 14KCS2 | NM |
| 14KCS3 | NM |
| 16KCS2 | NM |
| 16KCS3 | NM |
| 16KCS4 | NM |
| 16KCS5 | NM |
| 18KCS2 | 35–0 |
| 18KCS3 | NM |
| 18KCS4 | NM |
| 18KCS5 | NM |
| 20KCS2 | 36–0 |
| 20KCS3 | 39–0 |
| 20KCS4 | NM |
| 20KCS5 | NM |
| 22KCS2 | 36–0 |
| 22KCS3 | 40–0 |
| 22KCS4 | NM |
| 22KCS5 | NM |
| 24KCS2 | 39–0 |
| 24KCS3 | 44–0 |
| 24KCS4 | NM |
| 24KCS5 | NM |
| 26KCS2 | 39–0 |
| 26KCS3 | 44–0 |
| 26KCS4 | NM |
| 26KCS5 | NM |
| 28KCS2 | 40–0 |
| 28KCS3 | 45–0 |
| 28KCS4 | 53–0 |
| 28KCS5 | 53–0 |
| 30KCS3 | 45–0 |
| 30KCS4 | 54–0 |
| 30KCS5 | 54–0 |

NM=diagonal bolted bridging not mandatory.

Table B.
Erection Bridging for Long Span Joists

| *Joist* | *Span – Feet* |
|---|---|
| 18LH02 | 33–0. |
| 18LH03 | NM. |
| 18LH04 | NM. |
| 18LH05 | NM. |
| 18LH06 | NM. |
| 18LH07 | NM. |
| 18LH08 | NM. |
| 18LH09 | NM. |
| 20LH02 | 33–0. |
| 20LH03 | 38–0. |
| 20LH04 | NM. |
| 20LH05 | NM. |
| 20LH06 | NM. |
| 20LH07 | NM. |
| 20LH08 | NM. |
| 20LH09 | NM. |
| 20LH10 | NM. |
| 24LH03 | 35–0. |
| 24LH04 | 39–0. |
| 24LH05 | 40–0. |
| 24LH06 | 45–0. |
| 24LH07 | NM. |
| 24LH08 | NM. |
| 24LH09 | NM. |
| 24LH10 | NM. |
| 24LH11 | NM. |
| 28LH05 | 42–0. |
| 28LH06 | 46–0. |
| 28LH07 | 54–0 |
| 28LH08 | 54–0 |
| 28LH09 | NM. |
| 28LH10 | NM. |
| 28LH11 | NM. |
| 28LH12 | NM. |
| 28LH13 | NM. |
| 32LH06 | 47–0 through 60–0. |
| 32LH07 | 47–0 through 60–0. |
| 32LH08 | 55–0 through 60–0. |
| 32LH09 | NM through 60–0. |
| 32LH10 | NM through 60–0. |
| 32LH11 | NM through 60–0. |
| 32LH12 | NM through 60–0. |
| 32LH13 | NM through 60–0. |
| 32LH14 | NM through 60–0. |
| 32LH15 | NM through 60–0. |
| 36LH07 | 47–0 through 60–0. |
| 36LH08 | 47–0 through 60–0. |
| 36LH09 | 57–0 through 60–0. |
| 36LH10 | NM through 60–0. |
| 36LH11 | NM through 60–0. |
| 36LH12 | NM through 60–0. |
| 36LH13 | NM through 60–0. |
| 36LH14 | NM through 60–0. |
| 36LH15 | NM through 60–0. |

NM = diagonal bolted bridging not mandatory.

(4) Erection bridging.

(A) Where the span of the steel joist is equal to or greater than the span shown in Tables A and B, the following shall apply:

1. A row of bolted diagonal erection bridging shall be installed near the midspan of the steel joist;

2. Hoisting cables shall not be released until this bolted diagonal erection bridging is installed and anchored; and

3. No more than one employee shall be allowed on these spans until all other bridging is installed and anchored.

(B) Where the span of the steel joist is over 60 feet (18.3 m) through 100 feet (30.5 m), the following shall apply:

1. All rows of bridging shall be bolted diagonal bridging;

2. Two rows of bolted diagonal erection bridging shall be installed near the third points of the steel joist;

3. Hoisting cables shall not be released until this bolted diagonal erection bridging is installed and anchored; and

4. No more than two employees shall be allowed on these spans until all other bridging is installed and anchored.

(C) Where the span of the steel joist is over 100 feet (30.5 m) through 144 feet (43.9 m), the following shall apply:

1. All rows of bridging shall be bolted diagonal bridging;

2. Hoisting cables shall not be released until all bridging is installed and anchored; and

3. No more than two employees shall be allowed on these spans until all bridging is installed and anchored.

(D) For steel members spanning over 144 feet (43.9 m), the erection methods used shall be in accordance with subsection (g) of this section.

(E) Where any steel joist specified in subsections (h)(3)(B) and (h)(4)(A), (h)(4)(B), and (h)(4)(C) of this section is a bottom chord bearing joist, a row of bolted diagonal bridging shall be provided near the support(s). This bridging shall be installed and anchored before the hoisting cable(s) is released.

(F) When bolted diagonal erection bridging is required by this section, the following shall apply:

1. The bridging shall be indicated on the erection drawing;

2. The erection drawing shall be the exclusive indicator of the proper placement of this bridging;

3. Shop-installed bridging clips, or functional equivalents, shall be used where the bridging bolts to the steel joists;

4. When two pieces of bridging are attached to the steel joist by a common bolt, the nut that secures the first piece of bridging shall not be removed from the bolt for the attachment of the second; and

5. Bridging attachments shall not protrude above the top chord of the steel joist.

(5) Landing and placing loads.

(A) During the construction period, the employer placing a load on steel joists shall ensure that the load is distributed so as not to exceed the carrying capacity of any steel joist.

(B) Except for subsection (h)(5)(D) of this section, no construction loads are allowed on the steel joists until all bridging is installed and anchored and all joist-bearing ends are attached.

(C) The weight of a bundle of joist bridging shall not exceed a total of 1,000 pounds (454 kg). A bundle of joist bridging shall be placed on a minimum of three steel joists that are secured at one end. The edge of the bridging bundle shall be positioned within 1 foot (.30 m) of the secured end.

(D) No bundle of decking may be placed on steel joists until all bridging has been installed and anchored and all joist bearing ends attached, unless all of the following conditions are met:

1. The employer has first determined from a qualified person and documented in a site-specific erection plan that the structure or portion of the structure is capable of supporting the load;

2. The bundle of decking is placed on a minimum of three steel joists;

3. The joists supporting the bundle of decking are attached at both ends;

4. At least one row of bridging is installed and anchored;

5. The total weight of the bundle of decking does not exceed 4,000 pounds (1816 kg); and

6. The edge of the construction load shall be placed within 1 foot (.30 m) of the bearing surface of the joist end.

(i) Systems-engineered metal buildings.

(1) All of the requirements of this section apply to the erection of systems-engineered metal buildings except subsection (f) (column anchorage) and subsection (h) (open web steel joists).

(2) Each structural column shall be anchored by a minimum of four anchor rods (anchor bolts).

(3) Rigid frames shall have 50 percent of their bolts or the number of bolts specified by the manufacturer (whichever is greater) installed and tightened on both sides of the web adjacent to each flange before the hoisting equipment is released.

(4) Construction loads shall not be placed on any structural steel framework unless such framework is safely bolted, welded or otherwise adequately secured.

(5) In girt and eave strut-to-frame connections, when girts or eave struts share common connection holes, at least one bolt with its wrench-tight nut shall remain connected to the first member unless a manufacturer-supplied, field-attached seat or similar connection device is present to secure the first member so that the girt or eave strut is always secured against displacement.

(6) Both ends of all steel joists or cold-formed joists shall be fully bolted and/or welded to the support structure before:

(A) Releasing the hoisting cables;

(B) Allowing an employee on the joists; or

(C) Allowing any construction loads on the joists.

(7) Purlins may only be used as a walking/working surface when installing safety systems, after all permanent bridging has been installed and fall protection is provided.

(8) Construction loads may be placed only within a zone that is within 8 feet (2.5 m) of the center-line of the primary support member.

(j) Falling object protection.

(1) Securing loose items aloft. All materials, equipment, and tools, which are not in use while aloft, shall be secured against accidental displacement.

(2) Protection from falling objects other than materials being hoisted. The controlling contractor shall bar other construction processes below steel erection unless overhead protection for the employees below is provided.

(k) Permanent Flooring—Skeleton Steel Construction in Tiered Buildings.

(1) The permanent floors shall be installed as the erection of structural members progresses, and there shall be not more than eight stories between the erection floor and the uppermost permanent floor, except where the structural integrity is maintained as a result of the design.

(2) At no time shall there be more than four floors or 48 feet, whichever is less, of unfinished bolting or welding above the foundation or uppermost permanently secured floor, except where structural integrity is maintained as a result of the design.

(*l*) Temporary Flooring—Skeleton Steel Construction in Multistory Buildings.

(1) The derrick or erection floor shall be solidly planked or decked except for access openings. Planking or decking of equivalent strength, shall be of proper thickness to carry the working load. Planking shall be not less than 2 inches thick full size undressed, and shall be laid tight. Both planking and decking shall be secured.

(2) On buildings or structures not adaptable to temporary floors, and where scaffolds or approved fall protection is not used, safety nets shall be installed and maintained whenever the potential fall distance exceeds two stories or 30 feet, whichever is less.

(3) The exposed edges of all temporary planked and metal decked floors at the periphery of the building, or at interior openings, such as stairways and elevator shafts shall be protected by a single 3/8-inch minimum diameter wire rope of 13,500 pounds minimum breaking strength located between 42 and 45 inches above design finish floor height. Other guardrail protection may be used if equal fall protection is provided.

NOTE: If the periphery fall protection is intended to be used as a catenary line, it shall meet the provisions of Section 1710(m)(4).

(4) Midrail protection.

(A) Midrail protection shall be installed as soon as the metal decking has been installed; and

(B) Shall be installed prior to the decked area being used by trades other than the steel erector or decking crew.

(5) Framed metal deck openings shall have structural members turned down to allow continuous deck installation except where not allowed by structural design constraints or constructibility.

(6) Metal decking holes and openings shall not be cut until immediately prior to being permanently filled with the equipment or structure needed or intended to fulfill its specific use and which meets the strength re-

quirements of Section 1632(b) of these orders, or shall be immediately covered.

(7) Where skeleton steel is being erected, a tightly planked and substantial floor shall be maintained within two stories or 30 feet, whichever is less, below and directly under that portion of each tier of beams on which any work is being performed.

NOTE: Where a planked floor is not practical, subsection (*l*)(2) of this section applies.

(A) When gathering and stacking temporary floor planks, the planks shall be removed successively, working toward the last panel of the temporary floor so that the work is always done from the planked floor.

(B) When gathering and stacking temporary floor planks from the last panel, the employees assigned to such work shall be protected by an approved personal fall protection system attached to a catenary line or other substantial anchorage.

(m) Working and Traveling on the Skeleton Steel of Multistory Buildings or Structures.

(1) Connecting.

(A) When connecting beams or other structural members at the periphery or interior of a building or structure where the fall distance is greater than two stories or 30 feet, whichever is less, iron workers shall be provided with and use a personal fall protection system as described in Article 24 tied–off to either columns, pendant lines secured at the tops of columns, catenary lines, or other secure anchorage points.

(B) At heights over 15 and up to 30 feet above a lower level, connectors shall be provided with a personal fall arrest system, positioning device system or fall restraint system and wear the equipment necessary to be able to be tied off; or be provided with other means of protection from fall hazards in accordance with subsection (m).

NOTE: For fall protection requirements associated with work above reinforcing steel and similar projections, see Section 1712 of the Construction Safety Orders.

(C) Shinning of Columns.

1. When connecting beams or other structural members at columns the practice of shinning (vertically climbing up or down) columns to access workpoints shall be permitted where the fall distance does not exceed two stories or 30 feet, whichever is less.

2. Where the fall distance exceeds two stories or 30 feet, whichever is less, iron workers shall be provided with and use a personal fall protection system as described in Article 24 tied–off to either columns, pendant lines secured at the tops of columns, catenary lines, or other secure anchorage points.

(2) Work Other Than Connecting.

When performing any other work at a work point, iron workers shall be provided with and use personal fall protection as described in Article 24 where the fall distance is greater than 15 feet.

(3) Traveling at Periphery or Interior of Building.

(A) When moving from work point to work point or releasing slings, and the fall distance is greater than 30 feet or two stories, whichever is less, connectors:

1. Shall coon or walk the bottom flange (inside flange of peripheral beams);

2. May walk the top surface of securely landed decking bundles; or

3. May walk the top flange if they are tied–off to catenary lines or use other fall protection in accordance with Article 24.

(B) When moving from work point to work point or releasing slings, and the fall distance is greater than 15 feet for other than connecting, iron workers:

1. Shall coon or walk the bottom flange (inside flange of peripheral beams);

2. May walk the top surface of securely landed decking bundles; or

3. May walk the top flange if they are tied–off to catenary lines or use other fall protection in accordance with Article 24.

(4) Pendant lines, catenary lines and other lines used to secure workers shall be used in accordance with the Construction Safety Orders, Section 1670.

(5) If the procedure specified in subsection (m)(1) above is impractical, perimeter safety nets shall be installed at a distance of no more than 25 feet below the work surface and extend at least 8 feet beyond the perimeter of the building or structure. Nets shall meet the requirements set forth in accordance with Section 1671.

(n) Controlled Decking Zone (CDZ). A CDZ is an area established specifically for the initial placement and securing of metal decking where access to the area is restricted and work may take place without the use of a personal fall protection system.

(1) A controlled decking zone is permitted only in that area of the structure over 15 feet and up to 30 feet above a lower level when it can be shown that the use of a personal fall protection system is impractical or creates a greater hazard.

(2) The CDZ shall be limited to that area where metal decking is initially being installed and forms the leading edge work.

(3) The implementation of a CDZ shall be under the supervision of a competent person.

(4) The employer shall document the reasons why the use of conventional fall protection systems (guardrails, personal fall arrest systems, positioning device systems, fall restraint systems or safety nets) are infeasible or why their use would create a greater hazard.

(A) The name or other method of identification for each employee (e.g., job title) who is designated to work in the CDZ must be documented.

(B) The documentation required by this subsection shall be in writing and shall be available at the job site.

(5) Where a CDZ is being used, the employer shall assure that a safety monitoring system is provided and shall designate a competent person to monitor the safety of employees within the CDZ. The safety monitor shall comply with the following requirements:

(A) The safety monitor shall be competent to recognize fall hazards;

(B) The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;

(C) The safety monitor shall be within visual sighting distance of the employee;

(D) The safety monitor shall be close enough to communicate orally with the employee;

(E) The safety monitor shall not have other responsibilities which could take the monitor's attention from the monitoring function; and

(F) The safety monitor shall not be located within the CDZ.

(6) In each CDZ, the following shall apply:

(A) Each employee working within a CDZ shall be protected from fall hazards greater than two stories or 30 feet, whichever is less, by the use of a personal fall protection system.

(B) Access to a CDZ shall be limited to only those employees engaged in leading edge work.

(C) The boundaries of a CDZ shall be designated and clearly marked. The CDZ shall be defined by a control line or by any equivalent means that restrict access.

1. Control lines shall meet the requirements of Section 1671.2(a)(4) through (a)(6).

2. When control lines or equivalent means are used, they shall be erected not less than 6 feet from the unprotected leading edge.

3. The CDZ shall not be more than 90 feet wide and 90 feet deep from any leading edge.

4. Signs meeting the requirements of the General Industry Safety Orders, Section 3340 shall be posted to warn unauthorized persons to stay out of the CDZ.

(7) Safety deck attachments shall be performed in the CDZ from the leading edge back to the control line and shall have at least two attachments for each metal decking panel. The area of decking without completed safety deck attachments shall not exceed 3000 square feet.

(8) Final deck attachments, installation of shear connectors, and flashing shall not be performed in the CDZ.

(9) Where a CDZ is being used, the employer shall assure that each affected employee has been provided training in accordance with subsection (q)(3)(C) of this section.

(o) Custody of guardrail systems. Wire rope or other guardrail protection provided by the steel erector shall remain in the area where steel erection activity has been completed, to be used by other trades, only if the controlling contractor or its authorized representative:

(1) Has directed the steel erector to leave the wire rope or other guardrail protection in place; and

(2) Has inspected and accepted control and responsibility of the wire rope or other guardrail protection prior to authorizing persons other than steel erectors to work in the area.

(p) Smoke dome or skylight fixtures that have been installed, are not considered covers for the purpose of this section unless they meet the strength requirements of Section 1632(b) of these orders.

(q) Training.

The following provisions supplement the requirements of Section 1509 "Injury and Illness Prevention Program" regarding the hazards associated with structural steel erection.

(1) Training personnel. Training required by this section shall be provided by a qualified person(s).

(2) Fall hazard training. The employer shall provide a training program for all employees exposed to fall hazards. The program shall include training and instruction in the following areas:

(A) The recognition and identification of fall hazards in the work area;

(B) The use and operation of guardrail systems (including perimeter safety cable systems), personal fall arrest systems, positioning device systems, fall restraint systems, safety net systems, and other protection to be used;

(C) The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;

(D) The procedures to be followed to prevent falls to lower levels and through or into holes and openings in walking/working surfaces and walls; and

(E) The fall protection requirements for structural steel erection.

(3) Special training programs. In addition to the training required in subsections (q)(1) and (q)(2) of this section, the employer shall provide special training to employees engaged in the following activities.

(A) Multiple lift rigging procedure. The employer shall ensure that each employee who performs multiple lift rigging has been provided training in the hazards associated with multiple lifts including the following areas:

1. The proper inspection and removal of hoisting slings, eye–hooks and other rigging components used in multiple lift rigging.

2. Procedures for determining the proper sling length for structural members.

3. The use of rated load charts and capacities for manufactured rigging equipment.

4. The design and use of manufactured rigging assemblies.

5. Proper rigging techniques to maintain a distance of 7 feet between structural members being hoisted.

6. Instruction that no more than 5 structural members can be hoisted per lift.

7. Proper techniques for rigging structural members from the top down and setting structural members from the bottom up.

8. Procedures and techniques for rigging structural members at the center of gravity.

9. Procedures to ensure that no crane is used for multiple lifts that violates the crane manufacturer's specifications.

10. Procedures to ensure that no load exceeds 75 percent of the rated capacity for the hoisting equipment as specified in the hoisting equipment load charts.

11. The use of controlled load lowering on hoisting equipment used for multiple lifts.

12. Procedures for performing multiple lifts that are site–specific.

13. Procedures for preplanning overhead routes of suspended loads.

(B) Connector procedures. The employer shall ensure that each connector has been provided training in the following areas:

1. The nature of the hazards associated with connecting; and

2. Shinning of columns, access, proper connecting techniques and work practices required by subsections (g)(4) and (m) of this section.

(C) Controlled Decking Zone Procedures. Where CDZs are being used, the employer shall assure that each employee has been provided training in the following areas:

1. The nature of the hazards associated with work within a controlled decking zone; and

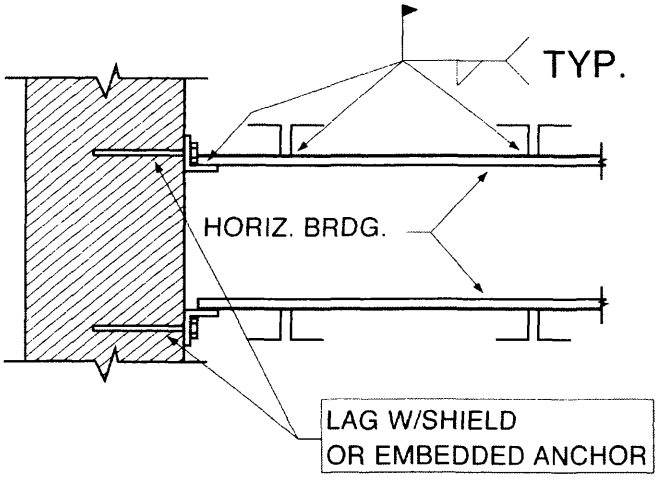
2. The establishment of CDZs, access, proper installation techniques and work practices required by subsection (n) of this section.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Sections 142.3, 7252, 7253, 7254, 7258, 7261, 7262 and 7266, Labor Code.

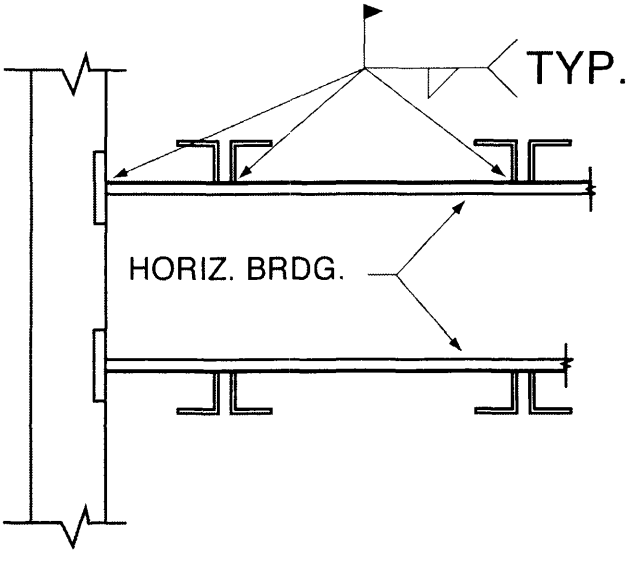
HISTORY

1. Amendment of subsection (b) filed 5–3–78; effective thirtieth day thereafter (Register 78, No. 18). For prior history, see Register 76, No. 41.
2. Amendment of subsection (e)(1)(C) filed 5–12–83; effective thirtieth day thereafter (Register 83, No. 20).
3. Amendment filed 6–21–85; effective thirtieth day thereafter (Register 85, No. 25).
4. New subsections (i)–(i)(2) filed 12–15–93; operative 1–14–94 (Register 93, No. 51).
5. Amendment of subsections (g)(1), (g)(2), (g)(3)(A)–(B) and (g)(5) filed 4–23–98; operative 5–23–98 (Register 98, No. 17).
6. Amendment of subsections (g)(1)–(2) filed 7–2–98; operative 8–1–98 (Register 98, No. 27).
7. New subsection (a)(4) filed 7–25–2001; operative 8–24–2001 (Register 2001, No. 30).
8. Amendment of section heading, section and NOTE and new Appendices A and B filed 5–1–2002; operative 5–1–2002. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2002, No. 18).
9. Amendment of section and Appendix A heading and new Appendix C filed 7–3–2003; operative 8–2–2003 (Register 2003, No. 27).
10. Amendment of subsection (f)(1)(A) filed 3–15–2006; operative 4–14–2006 (Register 2006, No. 11).
11. Change without regulatory effect amending appendices A and B filed 5–19–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 21).
12. Amendment of subsection (k)(2) filed 6–6–2008; operative 7–6–2008. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2008, No. 23).

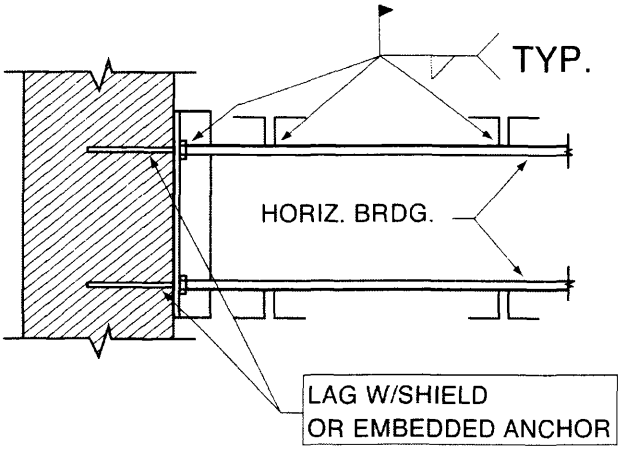
**Appendix A to Section 1710 — Illustrations of Bridging Terminus Points: Non-mandatory Guidelines for Complying with Sections 1710(h)(1)(J) and 1710(h)(3)(E).**



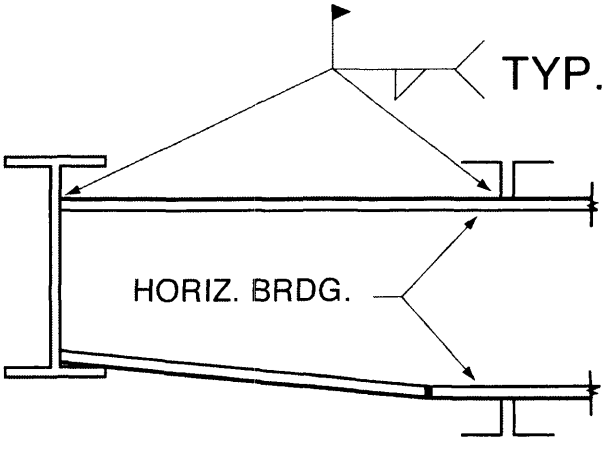

Horizontal Bridging Terminus at Wall



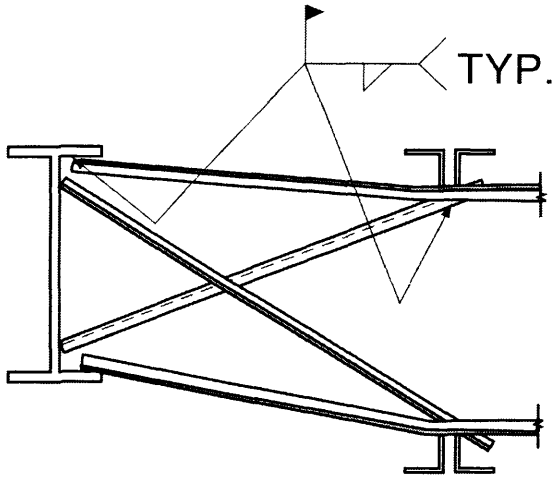

Horizontal Bridging Terminus at Panel Wall



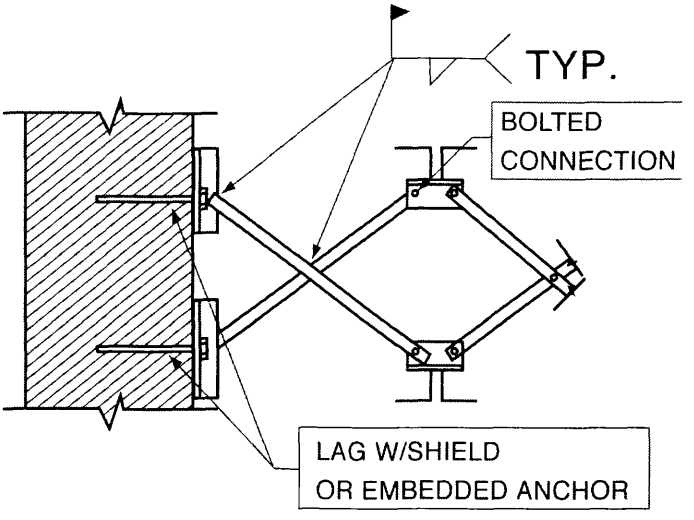

Horizontal Bridging Terminus at Wall



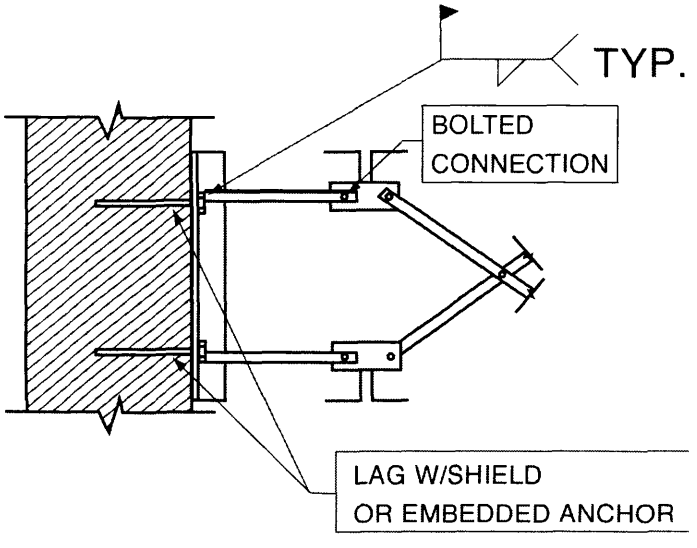

Horizontal Bridging Terminus at Structural Shape



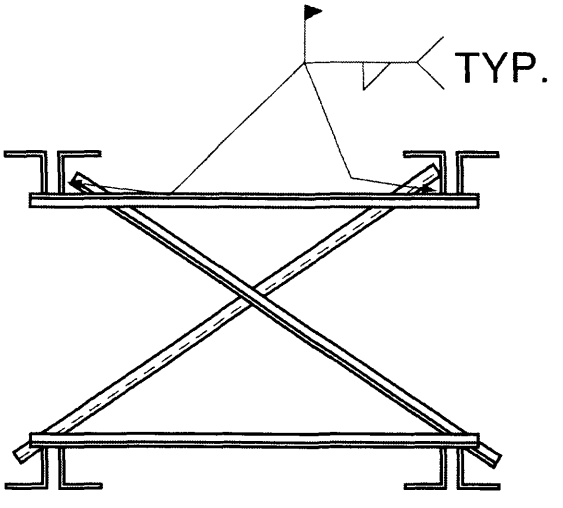

Horizontal Bridging Terminus at Structural Shape with Optimal "X–Bridging"



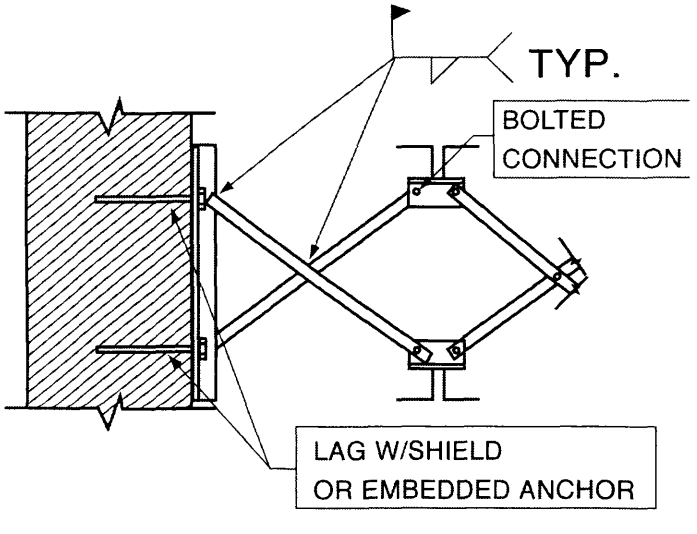

Bolted Diagonal Bridging Terminus at Wall



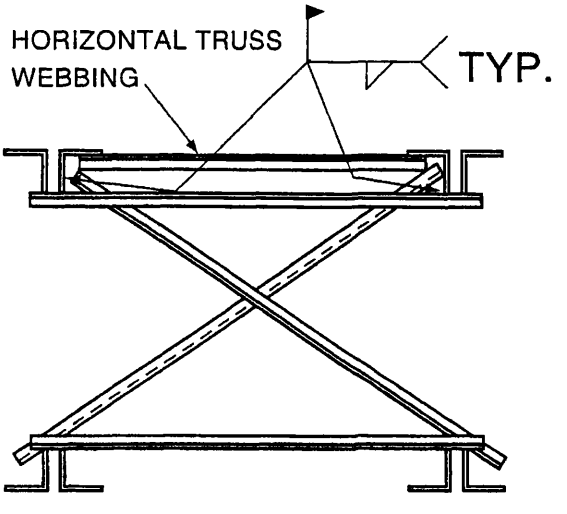

Bolted Diagonal Bridging Terminus at Wall



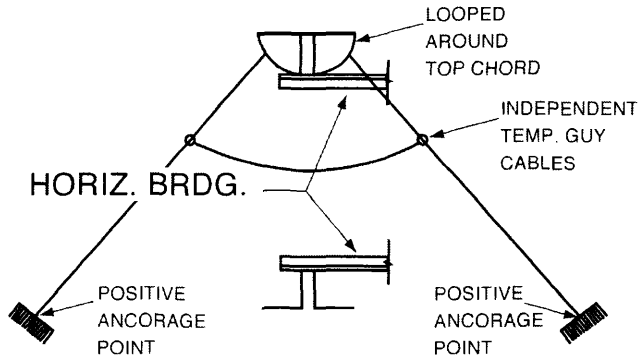

Joists Pair Bridging Terminus Point



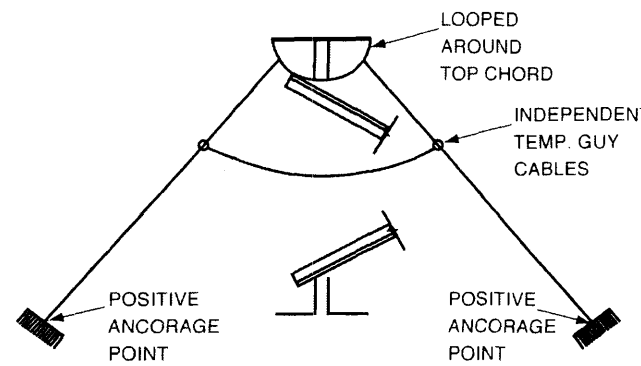

Bolted Diagonal Bridging Terminus at Wall




Joists Pair Bridging Terminus Point w/Horiz. Truss



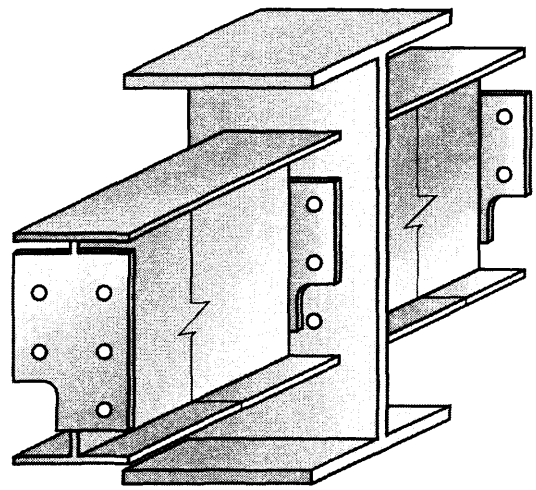

Horizontal Bridging Terminus Point Secured by Temp Guy Cables



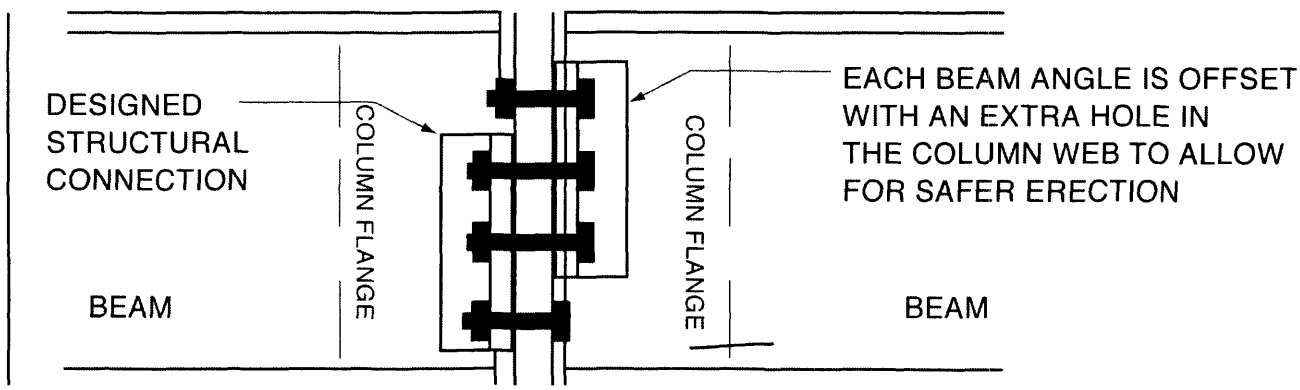

Diagonal Bridging Terminus Point Secured by Temp Guy Cables

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

## Appendix B to Section 1710 — Double Connections: Illustrations of a Clipped End Connection and a Staggered Connection: Non–Mandatory Guidelines for Complying with Section 1710(g)(4).



Clipped end connections are connection material on the end of a structural member which has a notch at the bottom and/or top to allow the bolt(s) of the first member placed on the opposite side of the central member to remain in place. The notch(es) fits around the nut or bolt head of the opposing member to allow the second member to be bolted up without removing the bolt(s) holding the first member.




Staggered connections are connection material on a structural member in which all of the bolt holes in the common member web are not shared by the two incoming members in the final connection. The extra hole in the column web allows the erector to maintain at least a one bolt connection at all times while making the double connection.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

## Appendix C to Section 1710 — Guidelines for Establishing the Components of a Site–Specific Erection Plan: Non–Mandatory Guidelines for Complying with Section 1710(c)(5)

(a) General. This appendix serves as a guideline to assist employers who elect to develop a site–specific erection plan in accordance with Section 1710(c)(5) with alternate means and methods to provide employee protection in accordance with Sections 1710(c)(5), 1710(d)(9), 1710(h)(1)(C) or Section 1710(h)(5)(D).

NOTE: The development of a site–specific erection plan does not eliminate the mandatory requirement for an erection plan and procedure prepared by a civil engineer as required by Section 1709(d) when trusses or beams over 25 feet long are used.

(b) Development of a site–specific erection plan. Pre–construction conference(s) and site inspection(s) are held between the erector and the controlling contractor, and others such as the project engineer and fabricator before the start of steel erection. The purpose of such conference(s) is to develop and review the site–specific erection plan that will meet the requirements of this section.

(c) Components of a site–specific erection plan. In developing a site–specific erection plan, a steel erector considers the following elements:

(1) The sequence of erection activity, developed in coordination with the controlling contractor, that includes the following:

(A) Material deliveries:

(B) Material staging and storage; and

(C) Coordination with other trades and construction activities.

(2) A description of the crane and derrick selection and placement procedures, including the following:

(A) Site preparation;

(B) Path for overhead loads; and

(C) Critical lifts, including rigging supplies and equipment.

(3) A description of steel erection activities and procedures, including the following:

(A) Stability considerations requiring temporary bracing and guying;

(B) Erection bridging terminus point;

(C) Anchor rod (anchor bolt) notifications regarding repair, replacement and modifications;

(D) Columns and beams (including joists and purlins);

(E) Connections;

(F) Decking; and

(G) Ornamental and miscellaneous iron.

(4) A description of the fall protection procedures that will be used to comply with Section 1710(m).

(5) A description of the procedures that will be used to comply with Section 1710(j).

(6) A description of the special procedures required for hazardous non–routine tasks.

(7) A certification for each employee who has received training for performing steel erection operations as required by Section 1710(q).

(8) A list of the qualified and competent persons.

(9) A description of the procedures that will be utilized in the event of rescue or emergency response.

(d) Other plan information. The plan:

(1) Includes the identification of the site and project; and

(2) Is signed and dated by the qualified person(s) responsible for its preparation and modification.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

### § 1711. Oiling Forms.

The oiling of floor panels that are in place shall not be done until the carpentry work on the form has been completed.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering from Section 1712 filed 11–1–73; effective thirtieth day thereafter (Register 73, No. 44).
2. New NOTE filed 6–21–85; effective thirtieth day thereafter (Register 85, No. 25).

### § 1712. Reinforcing Steel and Other Similar Projections.

(a) Scope. This section applies to all work sites and locations where employees work around or over exposed, projecting, reinforcing steel or other similar projections.

(b) Definitions.

Job–Built. As used in this section, protective covers and troughs usually constructed at the job–site of wood or other materials of equal or greater strength and designed specifically for covering exposed ends of reinforcing steel or other similar projections at a specific job–site.

Protective Covers. Manufactured or job–built apparatus designed to cover exposed ends of reinforcing steel or other similar projections so as to prevent impalement.

Troughs. Manufactured or job–built protective covers designed to cover two or more exposed ends of reinforcing steel or other similar projections so as to prevent impalement, and which meet the applicable requirements in subsection (d).

(c) Protection from Reinforcing Steel and Other Similar Projections.

(1) Employees working at grade or at the same surface as exposed protruding reinforcing steel or other similar projections, shall be protected against the hazard of impalement by guarding all exposed ends that extend up to 6 feet above grade or other work surface, with protective covers, or troughs.

(2) Employees working above grade or any surface and exposed to protruding reinforcing steel or other similar projections shall be protected against the hazard of impalement. Protection shall be provided by:

(A) The use of guardrails, or

(B) Approved fall protection systems meeting the design requirements of Article 24, or

(C) Protective covers as specified in subsection (d).

(3) Protective covers shall not be used to protect against impalement where the maximum height of fall exposure, to the top of the protective cover, exceeds 7 1/2 feet, unless the protective covers meet the requirement of subsection (d)(4)(D).

(d) Protective Covers, Specifications, Testing and Approval.

(1) Protective covers shall be made of wood, plastic, or other materials of equal or greater strength.

(2) Protective covers shall have a minimum 4–inch by 4–inch square surface area, or if round, a minimum diameter of 4 1/2 inches.

(3) Manufactured protective covers shall meet the following requirements:

(A) Manufactured protective covers shall be approved as provided for in Section 1505 and be legibly marked with the manufacturer's name or logo.

(B) Manufactured protective covers made before October 1, 2000 shall, at the minimum, be capable of withstanding the impact of a 250–pound weight dropped from a height of 10 feet without penetration failure of the cover.

(C) Manufactured protective covers made on or after October 1, 2000 shall meet the testing requirements of Section 344.90.

(4) Job–built protective covers shall meet the following requirements:

(A) Job–built protective covers shall be designed as specified by an engineer currently registered in the State of California. A copy of the engineering drawing(s) depicting the job–built protective covers shall be kept at the worksite and made available to the Division upon request.

EXCEPTION: Job–built troughs as depicted in Appendix Plate C–25 may be used as a substitute for engineered or manufactured protective covers when employees are working at heights not greater than 6 feet above grade or other working surface.

(B) Job–built wood protective covers and troughs shall be constructed of at least "Standard Grade" Douglas Fir, as graded by either the Western Lumber Grading Rules 98, handbook, effective March 1, 1998, published by the Western Wood Products Association, or the Standard No. 17 Grading Rules for West Coast Lumber, handbook, effective September 1, 1991 and revised January 1, 2000, published by the West Coast Lumber Inspection Bureau, which are hereby incorporated by reference.

(C) Job–built protective covers, except for troughs as depicted in Appendix Plate C–25, shall, at the minimum, be capable of withstanding the impact of a 250–pound weight dropped from a height of 10 feet without penetration failure of the cover.

NOTE: The drop test requirement in subsection (d)(4)(C) applies to protective covers used to prevent employee impalement where the employee is exposed to fall heights of up to 7 1/2 feet.

(D) Drop test specifications for job–built protective covers listed in subsection (d)(4)(C) shall be modified where fall heights greater than 7 1/2 feet are anticipated, to ensure that the protective cover can withstand increased impact loading.

(e) Fall Protection.

Employees shall not be permitted to place or tie reinforcing steel in walls, piers, columns, etc., more than 6 feet above an adjacent surface, unless a personal fall protection system is used in accordance with Section 1670 or other method affording equivalent protection from the hazard of falls from elevated surfaces.

EXCEPTION: Point–to–point horizontal or vertical travel on reinforcing steel up to 24 feet above the surface below providing there are no impalement hazards.

(f) Securing Reinforcing Steel.

(1) Reinforcing steel for walls, piers, columns, and similar vertical structures shall be guyed and supported to prevent collapse.

(A) Guys, supports, and braces shall be installed and removed as directed by a qualified person.

(2) Wire mesh rolls shall be secured to prevent dangerous recoiling action.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering from section 1713 filed 11–1–73; effective thirtieth day thereafter (Register 73, No. 44).
2. Amendment of subsection (a) and new subsections (b), (c) and (d) filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
3. Amendment of subsection (a) filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
4. Amendment filed 6–21–85; effective thirtieth day thereafter (Register 85, No. 25).
5. Repealer of subsection (a) and adoption of subsections (a)–(d)(5), relettering and amendment of former subsection (b) to subsection (e), relettering of former subsection (c) to subsection (f), and relettering of former subsection (d) to subsection (g) filed 11–8–93; operative 12–8–93 (Register 93, No. 46).
6. Amendment of subsection (e) filed 7–30–97; operative 8–29–97 (Register 97, No. 31).
7. Amendment of section heading and section filed 2–3–2004; operative 3–4–2004 (Register 2004, No. 6).

## § 1713. Framing and Concrete Forms.

(a) Framed panels for structures shall be securely anchored, guyed, or braced to prevent them from falling.

(b) Form panels for concrete structures shall be securely anchored, guyed, or braced to prevent them from falling or collapsing.

(1) Panels exceeding 500 pounds shall have lifting attachments with a safety factor of 4.

(2) Nailed lifting attachments shall not be used.

(c) Reinforcing steel shall not be used as guy attachments.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering from section 1714 filed 11–1–73; effective thirtieth day thereafter (Register 73, No. 44).
2. Amendment filed 6–21–85; effective thirtieth day thereafter (Register 85, No. 25).
3. Amendment of section heading filed 1–16–92; operative 2–17–92 (Register 92, No. 12).

## § 1714. Hoisting and Erecting Precast, Prefabricated Concrete Construction (Other Than Tilt–Up Panels).

(a) An erection plan and procedure shall be prepared by, or under the direction of, a civil engineer currently registered in California (hereinafter referred to as the responsible engineer).

(1) The erection plan and procedure shall be available at the job site.

(2) Job site inspections shall be made by the responsible engineer, or an authorized representative, during the course of erection to ensure that the erection plan and procedures are followed.

(3) Any proposed field modifications shall be approved by the responsible engineer and added to the plan and procedure available at the job site.

(4) Precast member or vertical panel bracing shall be designed by, or under the direction of, and installed in accordance with the direction of, the responsible engineer.

(5) Lifting methods and procedures shall be such that employees are not at risk of being struck by the concrete member, panel or supporting equipment.

(b) Lifting inserts, which are embedded or otherwise attached to precast concrete members, shall be capable of supporting at least four times the maximum intended load applied or transmitted to them, and shall be used in accordance with the manufacturer's recommendations.

(c) Lifting hardware shall be capable of supporting at least five times the maximum intended load applied or transmitted to the lifting hardware.

(d) Precast concrete members and structural framing shall be supported to prevent falling, overturning and collapse until the permanent connections specified in the erection plan are completed.

(e) Adjustment of precast members after initial placement, which requires the lifting of the members in any manner, shall not be made unless wire rope safety tie backs are used or the members are reattached to a load line.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 11–1–73; effective thirtieth day thereafter (Register 73, No. 44).
2. Amendment filed 6–21–85; effective thirtieth day thereafter (Register 85, No. 25).
3. Amendment of section heading and section filed 7–2–2001; operative 8–1–2001 (Register 2001, No. 27).

## § 1715. Tilt–Up Concrete Panel Construction.

(a) Concrete erection stresses, lifting point attachments and locations in tilt–up concrete panels shall be designed for expected loads, including impact, by, or under the direction of, a civil engineer currently registered in California (hereinafter referred to as the responsible engineer).

(b) Lifting inserts, which are embedded or otherwise attached to tilt–up concrete members shall be capable of supporting at least two times the maximum intended load applied or transmitted to them, and shall be used in accordance with the manufacturer's recommendations.

(c) Lifting hardware shall be capable of supporting at least five times the maximum intended load applied or transmitted to the lifting hardware.

(d) Vertical panel bracing used to support the tilt–up panels prior to final bolting/attachment shall be designed by, or under the direction of, and installed in accordance with the direction of the responsible engineer.

(1) Bracing shall be designed to withstand, at a minimum, a wind load induced force of a 70 mile per hour wind.

(2) Prior to the commencement of panel erection, detailed lifting and erection plans shall be prepared by, or under the direction of, the responsible engineer. All panel erection shall be performed in accordance with the plan.

(3) The lifting and erection plans and procedures shall be available on the job site.

(4) Field modifications to the lifting plan shall be approved by the responsible engineer and added to the plans and procedures available at the job site.

(5) Lifting methods and procedures shall be such that employees are not at risk of being struck by the panel or other supporting equipment.

(e) Tilt–up wall panels shall be supported to prevent overturning, toppling and/or collapse until permanent connections are completed as specified in the erection plan.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10–3–79 as an emergency; effective upon filing (Register 79, No. 40). A Certificate of Compliance must be filed within 120 days or emergency language will be repealed on 1–31–80.
2. Certificate of Compliance filed 1–30–80 (Register 80, No. 5).
3. Amendment filed 6–21–85; effective thirtieth day thereafter (Register 85, No. 25).
4. New subsections (b), (c) and renumbering (b) to (d) filed 10–22–90; operative 11–21–90 (Register 90, No. 48).
5. Amendment of section heading and section filed 7–2–2001; operative 8–1–2001 (Register 2001, No. 27).

## § 1716. Bolting, Riveting, Fitting–Up and Plumbing.

(a) General requirements:

(1) Containers shall be provided for storing or carrying rivets, bolts, and drift pins, and secured against accidental displacement when aloft.

(2) Pneumatic hand tools shall be disconnected from the power source, and pressure in hose lines shall be released, before any adjustments or repairs are made.

(3) Air line hose sections shall be tied together except when quick disconnect couplers are used to join sections.

(b) Bolting

(1) When bolts or drift pins are being knocked out, means shall be provided to keep them from falling.

(2) Impact wrenches shall be provided with a locking device for retaining the socket.

(c) Riveting

(1) Riveting shall not be done in the vicinity of combustible material unless precautions are taken to prevent fire.

(2) When rivet heads are knocked off, or backed out, means shall be provided to keep them from falling.

(3) A safety wire shall be properly installed on the snap and on the handle of the pneumatic riveting hammer and shall be used at all times. The wire size shall be not less than No. 9 (B & S gauge), leaving the handle and annealed No. 14 on the snap, or equivalent.

(d) Plumbing–up

(1) Connections of the equipment used in plumbing–up shall be properly secured.

(2) The turnbuckles shall be secured to prevent unwinding while under stress.

(3) Plumbing–up guys related equipment shall be placed so that employees can get at the connection points.

(4) Plumbing–up guys shall be removed only under the supervision of a competent person.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of former section 1810 to section 1716 filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4). For history of former section 1716, see Register 85, No. 25.

## § 1716.1. Structural Wood Framing Systems.

(a) Scope. This section applies to the construction and placement of structural wood framing systems.

(b) Definitions.

(1) Structural wood framing systems. Operations, methods, and procedures associated with the installation of essentially horizontal wood framing systems (including panelized roof systems) that are typically associated with construction used in non–residential type structures, such as warehouses, gymnasiums, shopping malls or similar structures. These orders do not apply to framing procedures typically associated with residential structures.

(2) Administrative controls. Employee training and instructions for the hazards associated with the construction of structural wood framing systems and the immediate presence of competent supervision on the jobsite to ensure safe work practices are followed where engineering controls have proven not to be feasible.

(c) Exposure and Protection.

(1) Employees are to be protected from falls by guardrails as specified in Section 1620 or a safety net, personal fall protection system, or other methods specified in Article 24 while walking/working on surfaces 15 feet or more above a lower level.

(A) Employees working at the leading edge shall be provided with either fall protection as specified in Article 24, utilize a fall protection plan or be protected by parapets at least 24 inches high.

(d) Use of lift trucks and elevated work platforms.

(1) When it is necessary to elevate employees using an industrial truck, the requirements of General Industry Safety Orders, Section 3657, Elevating Employees with Lift Trucks, and Section 3659, Back Guards, shall apply.

EXCEPTION: The seven foot back guard for the mast may be omitted where restricted clearance exists or the nature of the work prohibits its use. Where either of these conditions exists, administrative controls to ensure the safety of the employee shall be used.

(2) Employees and/or loads shall not be on the elevated work platform when the operator is not at the lift controls unless the following is complied with: the operator is able to see the lift, is within 25 feet, and has unobstructed return access to the lift; the power is turned off; brakes are set; and, the lift is on a level surface.

NOTE: Where it is necessary to tilt the mast of the lift truck to allow an employee to accomplish a necessary activity at an elevated location, the operator may tilt the mast forward, not to exceed 3 feet from the vertical if the work is of short duration and competent supervision is immediately present during the operation. Prior to elevating and tilting the mast, the operator shall inspect and verify the work platform is secure to the lift forks.

(e) Roof or Floor Openings.

(1) Roof or floor openings which exist during the construction of a structural wood framing system are to be guarded by a standard railing and toeboard or by a cover. The covering shall be secured in place and identified as an opening cover in letters not less than one inch high.

(2) Temporary openings shall be covered or guarded as soon as the operation reasonably permits.

(f) Erection procedure.

(1) A site–specific, written erection procedure shall be prepared by a qualified person, and implemented under the direct supervision of a competent person.

(2) A copy of the erection procedure shall be available at the jobsite.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section 1716.1 filed 8–1–74 as an emergency; effective upon filing (Register 74, No. 31).
2. Certificate of Compliance filed 11–22–74 (Register 74, No. 48).
3. Certificate of Compliance refiled 11–27–74 (Register 74, No. 48).
4. Repealer and new section filed 11–29–74; effective thirtieth day thereafter (Register 74, No. 48).
5. Repealer filed 6–21–85; effective thirthieth day thereafter (Register 85, No. 25).
6. New section filed 1–21–92; operative 2–20–92 (Register 92, No. 12).
7. Change without regulatory effect amending subsection (e)(1) filed 3–22–94 pursuant to title 1, section 100, California Code of Regulations (Register 94, No. 12).
8. Amendment of subsection (c)(1), repealer of subsection (c)(1)(A), redesignation of former subsection (c)(1)(A)1. as new subsection (c)(1)(A), and repealer of subsections (c)(1)(A)2.–(c)(1)(E) filed 7–30–97; operative 8–29–97 (Register 97, No. 31).
9. Amendment of subsection (f)(1) filed 1–29–2001; operative 2–28–2001 (Register 2001, No. 5).

## § 1716.2. Wood and Light Gage Steel Frame Construction, Residential/Light Commercial.

(a) Scope and Application.

This section applies to work directly associated with the framing of new buildings or structures using the operations, methods, and procedures associated with residential–type framing activities, i.e., joists or trusses resting on stud walls.

(b) Definitions.

(1) Bottom Plate. The bottom horizontal member of a frame wall. Sometimes called the "sole plate."

(2) Eaves. The lowest edge of a sloped roof.

(3) Fascia Board. The exterior trim board at the perimeter of the roof.

(4) Joist. One of a series of parallel beams used to create a structural support system for a floor deck or flat roof, onto which sheathing is fastened.

(5) Nominal Size. For purposes of this section, the commercial size designation of a standard width and depth of standard sawn lumber and glue laminated lumber grades; larger than the standard actual net size of the finished, dressed lumber. An approximate rough-cut dimension assigned to a piece of material as a convenience in referencing to the piece, such as "2 x 4".

(6) Rafter. One of a series of structural members of a roof designed to support roof loads. A framing member that runs up and down the slope of a pitched roof. The beams that slope from the ridge of a roof to the eaves and make-up the main body of the roof's framework. The rafters of a flat roof are sometimes called roof joists.

(7) Residential-type Framing Activities. For the purposes of this section, residential-type framing activities include: installation of floor joists, floor sheathing, layout and installation of walls, hanging and nailing of shear panels, setting and bracing roof trusses and rafters, installation of starter board, roof sheathing, and fascia board; installation of windows, siding and exterior trim.

(8) Roof Slope. For the purposes of this section, the incline angle of a roof surface, given as a ratio of the vertical rise to the horizontal run. A 7:12 roof has 7 feet of vertical rise for 12 feet of horizontal run.

(9) Sheathing. The structural panel covering fastened onto studs, floor joists, and/or rafters/trusses.

(10) Slide Guards. A 2-inch nominal cleat, on centers not to exceed 4 feet, securely fastened to the roof sheathing to provide footing on a sloped roof.

(11) Starter Board. The board-type sheathing material installed at eaves and gable ends in the plane of the sheathing and visible from the underside.

(12) Stud. A vertical framing member in walls and partitions, also referred to as a wall stud, attached to the horizontal sole plate below and the top plate above.

(13) Top Plate. Top horizontal member of a frame wall supporting ceiling joists, rafters, or other structural members.

(14) Truss. Prefabricated structural roof unit consisting of triangular bracing (truss webs) between the ceiling joist (bottom chord) and the roof rafter (top chord) commonly installed parallel with other trusses to create a structural support system for a roof after which sheathing is fastened. The bottom chord often serves as a ceiling joist. Each member is usually subjected to longitudinal stress only, either tension or compression.

(15) Truss Support Plate. A temporary support structure erected near mid-span of an area with a large open span, such as a garage, to support trusses during installation.

(c) Raising Walls.

(1) Before manually raising framed walls that are 15 feet or more in height, temporary restraints such as cleats on the foundation/floor system or straps on the wall bottom plate shall be installed to prevent inadvertent horizontal sliding or uplift of the framed wall bottom plate.

(2) Anchor bolts alone shall not be used for blocking or bracing when raising framed walls 15 feet or more in height.

(d) Stabilization of Structures.

Employees shall not work from or walk on top plates, joists, rafters, trusses, beams or other structural members until they are securely braced and supported.

(e) Work on Top Plate, Joists and Roof Structure Framing.

(1) When employees are walking/working on top plates, joists, rafters, trusses, beams or other similar structural members over 15 feet above the surrounding grade or floor level below, fall protection shall be provided by scaffolding, guardrails, a personal fall protection system, or by other means prescribed by CSO Article 24, Fall Protection.

EXCEPTIONS: (A) When employees are walking/working on securely braced joists, rafters or roof trusses on center spacing not exceeding 24 inches, and more than 6 feet from an unprotected side or edge, they shall be considered protected from falls between the joists, rafters or roof trusses.

(B) When installing floor joists, employees shall be considered protected from falls up to and including 15 feet above the surrounding grade or floor level below when standing on or working from joists laid on their sides on the top plate on center spacing not exceeding 24 inches when walking/working within 24 inches of the top plate or other structural support.

(2) Truss Support Plate. Where a truss support plate is used during the installation of trusses, it shall be constructed of a 2x6 plank laid flat, secured lineally to a 2x6 plank laid on edge, supported with 2x4 wood members (legs) spaced no more than 6 feet on center and attached to diagonal bracing adequately secured to support its intended load. All material dimensions are minimum and nominal.

(f) Work on Floors and Other Walking/Working Surfaces. When working on floors and other walking/working surfaces that will later be enclosed by framed exterior walls, employees directly involved with the layout and construction of framed stud walls shall be protected from falling by standard guardrails as specified in Section 1620 around all unprotected sides or edges, or by other means prescribed by CSO Article 24, Fall Protection, when the floor or walking/working surface is over 15 feet above the surrounding grade or floor level below.

(g) Work on Starter Board, Roof Sheathing and Fascia Board.

(1) When installing starter board, roof sheathing, and fascia board, employees shall be protected from falling by scaffolding, guardrails, personal fall protection systems, or other means prescribed by CSO Article 24, Fall Protection as follows:

(A) For structures greater than one story in height where the fall height exceeds 15 feet above the surrounding grade or floor level below, or

(B) When working on roofs sloped greater than 7:12.

EXCEPTION to (g)(1)(B): For roofs sloped up to 12:12, slide guards may be used as fall protection up to and including 15 feet as measured from the eaves to the surrounding grade or floor level below.

(2) Employees working inside the gable end truss or rafter shall be considered protected from falls where the gable end truss has been installed and braced to withstand a lateral force of 200 pounds and the employee installs fascia or starter board working from within the gable end truss or rafter.

(3) When work must be performed outside the gable end truss or rafter, the employee shall be protected from falling by scaffolding, or a personal fall protection system, or other means prescribed by CSO Article 24.

EXCEPTION to (g)(3): When the work is of short duration and limited exposure and the hazards involved in rigging and installing the safety devices required equal or exceed the hazards involved in the actual construction, these provisions may be temporarily suspended provided the work is performed by a qualified person.

(h) Installation of Windows. Wall openings shall be guarded as required by Section 1632. The guardrail may be removed immediately prior to the installation of the window components if removal of the guardrail is necessary to install the window(s).

(i) Scaffolding.

(1) Where scaffolding is used, it shall be constructed in accordance with all applicable requirements of CSO Articles 21 and 22 (Scaffolds).

(2) Where scaffolds are installed parallel and adjacent to framed structure walls, the interior railing may be omitted for installing joists, rafters or trusses if the scaffold platform is 15 feet or less from the interior floor level below and the top plate is higher than the adjacent work platform.

(3) When a scaffold is used as an edge protection platform:

(A) The platform shall not be more than 2 feet vertically below the top plate, and shall be fully planked.

(B) The distance between the inboard edge of the platform and the building or structure wall shall not be more than 16 inches.

(4) Additional provisions where a metal frame scaffold is used as an edge protection platform:

(A) A 2" x 6" or larger toeboard shall be secured on edge parallel to the outer rail.

(B) Scaffolds shall be secured in tension and compression to the structure at or near the top of the scaffold at each end and at every other frame not to exceed 20-foot intervals.

(C) Guard railings shall extend not less than 42 inches vertically above the eaves if the outboard edge of the platform extends less than 12 inches horizontally beyond the eaves.

(j) Training:

Employees exposed to fall hazards shall be trained in accordance with the requirements of Sections 1509 and 3203 to recognize fall hazards associated with the erection and construction activities they will be performing and shall be trained in the procedures to be followed in order to minimize these hazards. Such training shall be documented in accordance with Section 3203.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 5–1–2002; operative 5–1–2002. Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 2002, No. 18).
2. Amendment of section heading and section filed 7–7–2004; operative 8–6–2004 (Register 2004, No. 28).

## § 1717. Falsework and Vertical Shoring.

(a) Design Loads.

(1) Formwork and falsework or shoring for the support of concrete or other materials shall be designed, erected, supported, braced and maintained so as to assure its ability to safely withstand all intended loads during erection, construction, usage and removal.

(2) The minimum total design load for any formwork and shoring shall be not less than 100 pounds per square foot for the combined live and dead load regardless of slab thickness; however, the minimum allowance for live load and formwork shall be not less than 20 pounds per square foot in addition to the weight of the concrete.

When the equipment listed below is used, the above figures shall be increased in all cases by the amounts shown.

| | |
|---|---|
| Worker propelled carts | 10 pounds per square foot. |
| Motorized carts | 25 pounds per square foot. |

(3) Special consideration shall be given and the necessary additional allowances made for any unusual circumstances such as floor hoppers, concentrated piles of reinforcing steel bars, or similar loads.

(4) The lateral loads for shoring to be resisted at each floor in both directions by diagonal bracing, or other means, shall be taken at not less than 100 pounds per lineal foot of floor edge or two percent of the total dead load whichever is greater.

(b) Design.

(1) Detailed design calculations and working drawings shall be approved and signed by a civil engineer, currently registered in California, for all falsework or vertical shoring installations where any of the following conditions exists:

(A) The height, as measured from the top of the sills to the soffit of the superstructure exceeds 14 feet.

(B) Individual horizontal span lengths exceed 16 feet.

(C) Provisions for vehicular or railroad traffic through the falsework or vertical shoring are made.

(2) For all falsework and vertical shoring installations not covered by (b)(1) above, the falsework plan or shoring layout shall be approved and signed by one of the following:

(A) A civil engineer currently registered in California.

(B) A manufacturer's authorized representative.

(C) A licensed contractor's representative qualified in the usage and erection of falsework and vertical shoring.

(3) A falsework plan or a shoring layout shall be available on the job site at all times.

(4) All vertical supports shall be erected on a properly compacted and reasonably level and stable base. Plate, pads and load bearing characteristics of the soil shall be adequate to support the imposed loads.

NOTE:

(1) Precautions shall be taken so that weather and concrete pouring conditions do not change the load carrying capacity of the soil below the design minimum.
(2) The Division may require that evidence be submitted to justify the design for any falsework or vertical shoring installation.

(c) Inspection.

[The next page is 243.]

(1) After construction of the falsework or vertical shoring system enumerated in section 1717(b)(1) and prior to placement of concrete, a civil engineer, currently registered in California, or authorized representative, shall inspect the falsework or vertical shoring system for conformity with the working drawings. The person performing the inspection shall certify in writing that the falsework or vertical shoring system substantially conforms to the workingdrawings and that the material and workmanship are satisfactory.

(2) After construction of the falsework or vertical shoring system enumerated in section 1717(b)(2) and prior to the placement of concrete, an inspection for conformity with the working drawings shall be made by one of the following persons.

(A) A civil engineer currently registered in California.

(B) A manufacturer's authorized representative.

(C) A licensed contractor's representative qualified in the usage and erection of falsework and vertical shoring.

(3) The person performing the inspection shall certify in writing that the falsework or vertical shoring system conforms to the working drawings and that the material and workmanship are satisfactory. The certification shall be available at the job site.

(d) Work Area and Procedures.

(1) Where wood shores are butt spliced, they shall be made with square joints and secured on four sides with not less than 2-inch material or of 5/8-inch plywood of the same width as the post. The scabs shall extend at least two feet beyond the joint.

(2) If metal shore clamps are used, they shall be installed according to manufacturer's specifications.

(3) In lieu of requirements for standard walkways and work platforms in the immediate area where forms are being installed, joists or similar members not less than 5 1/2 inches wide and on centers not to exceed 36 inches shall be provided.

(4) When the formwork and shoring are being erected, the first set of protective guardrails shall be installed at the perimeter immediately after such supporting members are in place. Railings are to be installed and maintained at perimeter of and at openings in all floors of buildings and sides of bridge decks at all times.

(5) In the area immediately adjacent to where the joists or similar members are being installed, a 12-inch wide plank resting on the joists is acceptable as a walkway for distributing joists.

(6) Building floor form installation

(A) Employees shall be prohibited from working below a building floor form installation, except those individuals actually engaged in this installation, removal, or inspection. Warning signs to this effect shall be posted at the perimeter of the affected work area.

(B) During the actual placement of concrete, only those individuals who are engaged in the inspection or necessary building floor form modifications shall be permitted in the affected work area below the concrete placement.

(C) Areas underneath building floor form installations described in sections 1717(b)(1)(A) or 1717(b)(1)(B) shall not be occupied before, during, or after the placement of concrete unless the building floor form installations have been inspected and certified, by a civil engineer currently registered in California, to safely withstand all anticipated loads. All other building floor form installations shall be inspected and certified by one of the following persons, to safely withstand all anticipated loads.

1. A civil engineer currently registered in California.

2. A licensed contractor, or representative, qualified to determine that the floor form installation can safely withstand all anticipated loads.

(7) Stripped forms and shoring shall be removed and stockpiled promptly in all areas in which persons are required to work or pass. Protruding nails, wire ties, and other form accessories not necessary to subsequent work shall be pulled, cut, or other means taken to eliminate the related hazards.

(e) Removal.

(1) Formwork and shores (except those used for slabs on grade and slip forms) shall not be removed until the employer determines that the concrete has gained sufficient strength to support its weight and superimposed loads. Such determination shall be based on compliance with the stipulated conditions for removal of forms and shores indicated in the plans and specifications.

(2) Reshoring shall not be removed until the concrete being supported has attained the strength to support its weight and all loads placed upon it.

NOTE: For regulations relating to permits for falsework, see Section 1503.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Editorial correction in subsection (b) (Register 70, No. 48).
2. Repealer and new section filed 12-6-73; effective thirtieth day thereafter (Register 73, No. 49).
3. Repealer of subsection (a) new subsections (a), and (d)(8) filed 2-19-75; effective thirtieth day thereafter (Register 75, No. 8).
4. Amendment of subsection (a)(1) filed 5-3-78; effective thirtieth day thereafter (Register 78, No. 18).
5. Amendment filed 6-21-85; effective thirtieth day thereafter (Register 85, No. 25).
6. Amendment of subsection (d)(6) filed 2-15-90; operative 3-17-90 (Register 90, No. 8).
7. New subsection (e) filed 10-22-90; operative 11-21-90 (Register 90, No. 48).
8. Editorial correction of printing error in subsections (d)(6)(B) and (d)(6)(C) (Register 92, No. 19).

## § 1718. Riding on Loads.

(a) No person shall be permitted to ride on loads, hooks, or slings of any derrick, hoist, or crane.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 6-21-85; effective thirtieth day thereafter (Register 85, No. 25).
2. Amendment of subsection (a) filed 12-11-90; operative 1-10-91 (Register 91, No. 4).

## § 1719. Vertical Slip Form Operations.

(a) The steel rods or pipe on which the jacks climb or by which the forms are lifted shall be specifically designed for the purpose. Such rods shall be adequately braced where not encased in concrete.

(b) Jacks and vertical supports shall be positioned in such a manner that the vertical loads are distributed equally and do not exceed the capacity of the jacks.

(c) The jacks or other lifting devices shall be provided with mechanical dogs or other automatic holding devices to provide protection in case of failure of the power supply or the lifting mechanism.

(d) Lifting shall proceed steadily and uniformly and shall not exceed the predetermined safe rate of lift.

(e) Lateral and diagonal bracing of the forms shall be provided to prevent excessive distortion of the structure during the jacking operation.

(f) During jacking operations, the form structure shall be maintained in line and plumb.

(g) All vertical lift forms shall be provided with scaffolding or work platforms completely encircling the area of placement.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 2-19-75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment of NOTE filed 6-21-85; effective thirtieth day thereafter (Register 85, No. 25).

## § 1720. Placement of Concrete.

(a) Concrete Buggies.

(1) Handles of buggies shall not extend beyond the wheels on either side of the buggy.

(2) Handles shall be guarded or equipped with knuckle guards.

(b) Concrete Pumps and Placing Booms.

(1) Scope. This subsection is applicable to truck–mounted concrete boom pumps, trailer–mounted concrete pumps and separate concrete placing booms.

(2) Definitions.

Concrete delivery hose. A flexible delivery hose having a coupling on each end.

Control panel. The place where the control actuating devices for the operation of the machine are located.

Delivery system. Delivery lines, hoses, and their components, as well as transfer valves, through which the material to be transported is pumped.

End hose. A flexible concrete delivery hose which has only one end coupling.

Placing boom. Manual or power driven, slewable working device, consisting of one or more extendable or foldable parts which support the concrete delivery system, and which direct the discharge into the desired location.

Remote control. A control device for the machine that is portable and may be connected to the machine by a wire umbilical cord or linked by radio or other wireless means.

(3) General.

(A) Equipment identification and ratings.

1. The following information shall be legibly marked on a durable identification plate on the concrete pump.

a. Manufacturer's name.

b. Year of manufacture.

c. Serial number.

d. Type or model identification.

e. Maximum working pressure in the hydraulic system.

f. Maximum material pressure.

g. Power rating for electrical equipment (voltage, frequency, amperage).

2. The following information shall be legibly marked on a durable identification plate on the placing boom.

a. Manufacturer's name.

b. Year of manufacture.

c. Serial number.

d. Type or model identification.

e. Maximum working pressure in the hydraulic system.

f. Maximum weight per foot of the delivery system, including concrete at 150 lbs/foot$^3$.

(B) Set–up and operation. Concrete pumping equipment and placing booms shall be set–up and operated in accordance with the manufacturer's operation and safety manuals, and these Orders.

1. The manufacturer's operation manual shall be maintained in legible condition and shall be available to the operator during set–up and operation of the equipment.

2. The concrete placing boom shall not be used to drag hoses or lift other loads.

3. Concrete delivery hoses shall not be used as end hoses.

EXCEPTIONS FOR (B)3:

1. Shotcrete operations.

2. When the hose is supported by the walking/working surface while pumping and placing flatwork.

(C) Controls.

1. Controls shall have their function clearly marked.

2. If there are several control locations, the same operation shall only be possible from one location at a time.

EXCEPTION FOR (C)2:

Emergency stop controls required by subsection (b)(3)(C)4 shall have priority and shall be operable from any installed location.

3. Controls shall be safeguarded against unintentional operation.

EXCEPTION FOR (C)3: Equipment manufactured before May 3, 2006.

4. Each machine shall be equipped with an emergency stop system.

a. The machine shall be equipped with emergency stop devices at the control panels and at the remote control device.

(D) Guarding. Guarding shall be provided and maintained in accordance with the manufacturers' specifications to prevent unintentional access to moving parts.

(E) Delivery systems.

1. Concrete pumping systems using discharge pipes shall be provided with pipe supports designed for twice the rated load, including concrete at 150 lbs/ft$^3$.

2. Compressed air hoses, if used, shall be equipped with connecting ends that shall be chained or otherwise secured to prevent whipping in case of separation when pressurized.

(F) Operation of concrete placing booms in proximity of overhead high–voltage lines shall be in accordance with Article 37 of the High–Voltage Electrical Safety Orders.

1. Warning signs. Concrete placing booms shall be posted with durable warning signs in accordance with Section 2947.

EXCEPTION: Minimum clearances from overhead high–voltage lines in accordance with manufacturers' specifications may be posted where minimum clearance distances are greater than those prescribed by Article 37 of the High–Voltage Electrical Safety Orders.

(4) Inspection, maintenance and repairs.

(A) A qualified attendant or operator shall visually inspect the machine's controls and functional mechanisms for maladjustment, damage or deterioration prior to daily use. Any condition that affects the safe operation shall be corrected prior to use.

1. Hoses, clamps and pipes shall be inspected by a qualified attendant or operator prior to use. Damaged or defective hoses, clamps or pipes shall not be used.

(B) A preventative maintenance program shall be established and implemented in accordance with the manufacturer's specifications.

(C) Inspection, maintenance and repairs shall be performed by a qualified person in accordance with the manufacturer's specifications and procedures.

(D) Inspection records shall include the following:

1. A listing of the components and parts inspected and tested.

2. A brief description of test methods, results, and repairs made.

3. Names and signatures of persons performing the inspections.

(E) Records of inspections and maintenance shall be made available to the Division on request.

(5) Manufacturer no longer in business.

(A) If the manufacturer is no longer in business and manufacturer's specifications are no longer available, required set–up, operation, inspection, and maintenance procedures and repairs shall be specified by a qualified person experienced in the field of concrete pumps and placing booms.

(B) Inspection, maintenance and repairs shall be performed by a qualified person in accordance with the specifications and procedures established under the provisions of subsection (b)(5)(A).

(c) Concrete Buckets.

(1) Buckets equipped with hydraulic of pneumatic operating gates shall have devices installed to prevent accidental dumping.

(2) Buckets shall be designed to prevent aggregate and loose material from accumulating on the top and sides of the bucket.

(3) Riding of concrete buckets for any purpose shall be prohibited.

(4) No employee shall be permitted to work under concrete buckets while buckets are being elevated or lowered into position.

(d) General.

(1) When discharging on a slope, the wheels of ready–mix trucks shall be blocked and the brakes set to prevent movement.

(2) Nozzle–gun operators shall be required to wear protective head and face equipment as prescribed in article 3.

(e) Adjustment of single post shores to raise formwork shall not be made after the placement of concrete.

(f) Reshoring shall be erected, as the original forms and shores are removed,whenever the concrete is required to support loads in excess of its capacity.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 2-19-75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment filed 6-21-85; effective thirtieth day thereafter (Register 85, No. 25).
3. Amendment of subsection (c)(4) and new subsections (e) and (f) filed 10-22-90; operative 11-21-90 (Register 90, No. 48).
4. Amendment filed 4-3-2006; operative 5-3-2006 (Register 2006, No. 14).

### § 1721. Post-Tensioning Operations.

(a) No employee (except those essential to the post-tensioning operations) shall be permitted to be behind the jack during tensioning operations.

(b) Signs and barriers shall be erected to limit employee access to the post-tensioning area during tensioning operations.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 10-22-90; operative 11-21-90 (Register 90, No. 48).

### § 1722. Masonry Construction.

(a) A limited access zone shall be established whenever a masonry wall is being constructed. The limited access zone shall conform to the following:

(1) The limited access zone shall be established prior to the start of construction of the wall.

(2) The limited access zone shall be established on the side of the wall which will be unscaffolded.

(3) The width of the limited access zone (measured perpendicularly from the base of the wall on the unscaffolded side) shall be equal to the height of the wall to be constructed plus four feet. The limited access zone shall run the entire zone of the wall. If the width of the limited access zone can not be attained because the wall being constructed is located adjacent to the property line or adjacent to a structure, the width of the limited access zone shall be the width permitted by the obstruction of the property line or structure.

(4) The limited access zone shall be restricted to entry by employees actively engaged in constructing the wall. No other employee shall be permitted to enter the zone.

(5) The limited access zone shall remain in place until the wall is adequately supported to prevent collapse unless the height of wall is over eight feet, in which case, the limited access zone shall remain in place until the requirements of section 1722(b) have been met.

(b) All masonry walls over eight feet in height shall be adequately braced to prevent overturning and to prevent collapse unless the wall is adequately supported through its design and/or construction method to prevent overturning or collapse. The bracing shall remain in place until permanent supporting elements of the structure are in place.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 10-22-90; operative 11-21-90 (Register 90, No. 48).

### § 1722.1. Requirements for Lift-Slab Construction Operations.

(a) Lift-slab operations shall be designed and planned by a civil engineer currently registered in California who determines that he/she has sufficient experience in lift-slab construction to so design and plan the lift-slab operation. Such plans and designs shall be implemented by the employer and shall include detailed instructions and sketches indicating the prescribed method of erection. These plans and designs shall also include provisions for ensuring lateral stability of the building/structure during construction.

(b) Jacks/lifting units shall be marked to indicate their rated capacity as established by the manufacturer.

(c) Jacks/lifting units shall not be loaded beyond their rated capacity as established by the manufacturer.

(d) Jacking equipment shall be capable of supporting at least two and one-half times the load being lifted during jacking operations and the equipment shall not be overloaded. For the purpose of this provision, jacking equipment includes any load bearing component which is used to carry out the lifting operation(s). Such equipment includes, but is not limited, to the following: threaded rods, lifting attachments, lifting nuts, hook-up collars, T-caps, shearheads, columns, and footings.

(e) Jacks/lifting units shall be designed and installed so that they will neither lift nor continue to lift when they are loaded in excess of their rated capacity.

(f) Jacks/lifting units shall have a safety device installed which will cause the jacks/lifting units to support the load in any position in the event any jack/lifting unit malfunctions or loses its lifting ability.

(g) Jacking operations shall be synchronized in such a manner to insure even and uniform lifting of the slab. During lifting, all points at which the slab is supported shall be kept within one-half inch of that needed to maintain the slab in a level position.

(h) If leveling is automatically controlled, a device shall be installed which will stop the operation when the one-half-inch tolerance set forth in Section 1722.1(g) is exceeded or where there is a malfunction in the jacking (lifting) system.

(i) If level is maintained by manual controls, such controls shall be located in a central location and attended by a competent person while lifting is in progress. The competent person must have previously operated the type of manually controlled lifting equipment being used.

(j) The maximum number of manually controlled jacks/lifting units on one slab shall be limited to a number that will permit the operator to maintain the slab level within specified tolerances of section 1722.1(g), but in no case shall that number exceed 14.

(k) No employee, except those essential to the jacking operation, shall be permitted in the building/structure while any jacking operation is taking place unless the building/structure has been reinforced sufficiently to ensure its integrity during erection. The phrase "reinforced sufficiently to ensure its integrity" used in this section means that a civil engineer currently registered in California, independent of the engineer who designed and planned the lifting operation, has determined from the plans that if there is a loss of support at any jack location, that loss will be confined to that location and the structure as a whole will remain stable.

(l) Under no circumstances, shall any employee who is not essential to the jacking operation be permitted immediately beneath a slab while it is to be lifted.

(2) For the purpose of section 1722.1(k), a jacking operation begins when a slab or group of slabs is lifted and ends when such slabs are secured (with either temporary connections or permanent connections).

(*l*) When making temporary connections to support slabs, wedges shall be secured by tack welding, or an equivalent method of securing the wedges to prevent them from falling out of position. Lifting rods may not be released until the wedges at that column have been secured.

(m) All welding on temporary and permanent connections shall be performed by a certified welder, according to the welding requirements specified in the plans and specifications for the lift-slab operation.

(n) Load transfer from jacks/lifting units to building columns shall not be executed until the welds on the column shear plates (weld blocks) are cooled to air temperature.

(o) Jacks/lifting units shall be positively secured to building columns so that they do not become dislodged or dislocated.

(p) Equipment shall be designed and installed so that the lifting rods cannot slip out of position or the employer shall institute other measures, such as the use of locking or blocking devices, which will provide positive connection between the lifting rods and attachments and will prevent components from disengaging during lifting operations.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 10-22-90; operative 11-21-90 (Register 90, No. 48).
2. Amendment of section heading and text filed 8-11-92; operative 9-10-92 (Register 92, No. 33).

## Article 30. Roofing Operations and Equipment

### § 1723. Application.

(a) The Orders contained in this Article are intended to apply to employees engaged in the removal or application of:

(1) Single-unit (Monolithic) roof coverings which include built-up roofing of asphalt or coal-tar pitch or like materials, and flat-seam metal roofings or like materials, and

(2) Multiple-unit roof coverings which include asphalt shingles, asbestos-cement shingles, standing-seam metal panels, shingle metal roofing, wood shakes and shingles, clay tile, concrete tile, slate or like materials.

(b) Applicable parts of this Article shall apply wherever kettles, tankers or pots with capacities in excess of 5 gallons are used in providing hot asphalt, pitch or like materials for construction or maintenance operations.

(c) When the work is of short duration and limited exposure, such as minor patching, measuring, roof inspection, etc., and the hazards involved in rigging and installing the safety devices required by this Article equals or exceeds the hazards involved in the actual construction, these provisions may be temporarily suspended provided that adequate risk control is recognized and maintained.

NOTE: See Appendix for additional information on roofing safety.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of Article 30 (Sections 1725–1730) and new Article 30 (Sections 1723–1730) filed 6–6–80; effective thirtieth day thereafter (Register 80, No. 23). For prior history, see Registers.
2. Amendment of subsections (a)(1) and (a)(2) filed 7–3–80; effective thirtieth day thereafter (Register 80, No. 27).

### § 1724. Roofing—General.

(a) Roof Jack Systems (Includes Jacks, Planks and Appurtenances.)

(1) Roof jacks shall be constructed to fit the slope of the roof and be designed, fabricated and installed in such a manner that they will sustain all expected loads. The supported plank shall be positioned at some angle from perpendicular to the roof to horizontal. For suggested installation, see Appendix Plate C–19.

(2) Intervals (spans) between roof jacks shall not exceed 10 feet.

(3) When rope supports are used, they shall consist of first-grade Manila rope of at least 3/4–inch diameter or other material of equivalent strength.

(4) Wooden supporting members that span between jacks, as illustrated in Appendix Plate C–19, shall be selected lumber as defined in Section 1504(a), or equivalent and be of at least 2–inch by 6–inch material. Where supporting members other than wood are used they shall be of at least the equivalent strength.

(b) Crawling Boards.

(1) Crawling boards shall be not less than 10 inches wide and 1–inch thick, and shall have cleats of at least 1–inch by 1 1/2–inch material. The cleats shall be equal in length to the width of the board and spaced at equal intervals not to exceed 24 inches. Nails shall be driven through and clinched on the underside of the board.

(2) Where building design permits, the crawling boards shall extend from the ridge pole to the eaves.

(3) A firmly fastened line of at least 3/4–inch diameter Manila rope, or equivalent, shall be laid beside each crawling board for use as a handhold.

(4) Crawling boards shall be secured to the roof by adequate ridge hooks or other effective means.

(c) Catch Platforms.

(1) When catch platforms are used, they shall be installed in close proximity below the eaves below roof work areas, extend at least 2 feet horizontally beyond the projection of the eaves, and be provided with standard railings and toeboards (See Article 16).

(2) The platforms shall be fully planked.

(d) Scaffold Platforms.

(1) When built-up scaffold platforms are used to protect workers from falls from the edges of roofs, they shall be installed and maintained in accordance with the provisions of Article 22, Scaffolds.

(2) A fully planked platform shall be provided near the eave level.

(e) Eave Barriers.

(1) When a system of eave barriers is provided to prevent falls from roofs, the barrier, unless of solid construction, shall be in accordance with the provisions of Article 16, Standard Railings.

(2) The barrier system shall be securely anchored at eave level or supported by ropes securely tied to substantial anchorages on the roof.

(3) If the barrier system is to be moved from one work area to another, employees performing the moving operation shall be protected by the use of safety belts and lines.

(f) Personal Fall Protection.

(1) Where used to prevent workers from falling off roofs, personal fall arrest systems, personal fall restraint systems and positioning devices shall be installed and used in accordance with the provisions of Article 24, Fall Protection.

(2) Safety lines shall be attached in a secure manner to substantial anchorages on the roof.

(g) High-Lift Material Trucks. Standard railings and toeboards shall be provided on the open sides of the platforms of high-lift material trucks when the platform is used as a work surface, except when it is not feasible during loading or unloading operations at elevations 7 1/2–feet or more above ground, floor or level underneath.

(h) Ramps and Runways.

(1) Ramps or runways erected and used exclusively for the purpose of loading or unloading roofing materials at elevations above ground, or other level below, not exceeding 20 feet in height shall be at least 40 inches in width. At those elevations exceeding 20 feet in height, standard guardrails shall be installed and maintained on both sides of the ramp or runway.

NOTE: A 10–inch wide horizontal opening is permitted between the railing and the ramp or runway platform.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (h)(1) filed 7–3–80; effective thirtieth day thereafter (Register 80, No. 27).
2. Amendment of subsection (g) filed 10–30–81; effective thirtieth day thereafter (Register 81, No. 44).
3. Amendment of subsection (a) filed 3–29–82; effective thirtieth day thereafter (Register 82, No. 14).
4. Amendment of subsections (a), (b), (d), (e) and (h) filed 12–15–86; effective thirtieth day thereafter (Register 86, No. 51).
5. Amendment of subsection (f)(1) filed 7–2–98; operative 8–1–98 (Register 98, No. 27).

### § 1725. Handling of Buckets, Kettles and Tankers.

(a) Buckets containing hot asphalt or pitch shall not be carried on ladders.

(b) Not more than one bucket of hot asphalt or pitch shall be carried at one time by a worker on a roof having a slope ratio of 6 vertical in 12 horizontal (6:12) or steeper.

(c) Buckets used in carrying service shall be filled so that the liquid surface is not closer than 4 inches from the top. No other open container transporting hot asphalt or pitch shall be filled beyond 75 percent of capacity.

(d) An attendant shall be within 100 feet of a kettle or tanker at all times while the burner flame is on, with no ladders or similar obstacles forming a part of the route to be taken to reach the kettle or tanker. However, if the kettle or tanker is controlled by an operating thermostat, the above distance and route limitations do not apply, provided that arrangements are made for needed service.

(e) A clear path, free of debris, shall be maintained between the kettle and the hoist or hand line.

(f) When moving the kettle on any public street or roadway, it shall be drained at least 5 inches below the splash rail.

(g) When in use, the LPG fuel container shall be installed in accordance with the provisions of Article 32, Oxygen, Acetylene and Fuel Gas.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (d) filed 7–3–80; effective thirtieth day thereafter (Register 80, No. 27).
2. Amendment of subsections (c) and (g) filed 12–15–86; effective thirtieth day thereafter (Register 86, No. 51).

### § 1726. Asphalt and Pitch Kettles.

(a) The covers on kettles shall be constructed to close tightly.

(b) Kettles shall be equipped with adjustable supports for use in setting kettles so that they are prevented from turning over.

(c) Relief Valve. The fuel tank of every kettle that depends upon the pressure of power–pumped (machine compressed) air for fuel delivery shall be equipped with a spring–loaded relief valve set to pop at a pressure not to exceed the maximum safe working pressure of the vessel, but in no case greater than 60 pounds per square inch.

(d) A Class BC fire extinguisher shall be kept near each kettle in use. Extinguisher capacity shall be at least as follows:

| | |
|---|---|
| Less than 150 gallons | 8:B.C. |
| 150 to 350 gallons | 16:B.C. |
| Larger than 350 gallons | 20:B.C. |

(e) An extension handle of sufficient length to permit safe closing of a stuck spigot shall be accessible near the kettle at all times.

(f) Kettle and tanker pumps shall be provided with a means of stopping the flow of hot asphalt or pitch manually from the roof top in emergencies when an attendant is not provided within 100 feet horizontally or 20 feet vertically from the kettle or tanker.

(g) Pumper pipelines shall be securely fastened at roof top and shall not be supported by ladders used for access.

(h) Kettles shall have the following safety features:

(1) A fluid level indicator, such as a dipstick, that will indicate the level of liquid asphalt or pitch within the kettle without the necessity of opening the lid for direct observation.

(2) Vents providing a total open area of not less than 100 square inches for up to 200 gallons capacity and not less than 200 square inches for kettles of larger capacities.

NOTE: See Sections on LP–Gas use, Article 32.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (a) and (h) filed 12–15–86; effective thirtieth day thereafter (Register 86, No. 51).

### § 1727. Kettles Mounted and Used on Elevated Truck Beds.

(a) Platforms shall be designed and constructed to:

(1) Carry imposed load without excessive tipping or distortion.

(2) Provide a clear work area at least 4 feet wide at the accessible sides and ends of the kettle, including an unobstructed 4–foot passageway between the kettle spigot and the roof.

(3) Provide a noncombustible platform or platform covering.

(b) An access ladder to the platform must be provided. This ladder shall be fixed or be provided with an easily engaged attachment bracket that will prevent ladder slippage. Ladder rails must extend 3 feet above the platform, unless adequate handholds above the platform are provided.

(c) Railings shall be provided around the edges of the platform in accordance with the provisions of Article 16, Standard Railings.

(d) The platform shall be kept reasonably free from asphalt or pitch drippings.

(e) Kettle covers shall be closed when the truck is in motion.

(f) Kettles shall be securely attached to the platform so they will not shift or tip.

(g) Kettle burners must be extinguished when the truck is moving.

(h) No riders are to be allowed on the elevated platform while the truck is in motion.

(i) Platforms which can be raised and lowered shall be locked in place when in an elevated position.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (a)–(c) and (f) filed 12–15–86; effective thirtieth day thereafter (Register 86, No. 51).

### § 1728. Handling Coal Tar Pitch.

(a) When coal tar pitch is being handled, suitable skin protection substances shall be readily available at the job site for the use of workers, and workers shall be instructed in its use in accordance with Section 1510.

(b) Suitable respiratory and eye protection shall be readily available to workers handling coal tar pitch in confined spaces where ventilation is inadequate to promptly dissipate the fumes and vapors.

(c) Suitable washing or cleansing facilities shall be available for use on exposed skin surfaces of those handling coal tar pitch.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

### § 1729. Hot Asphalt and Hot Pitch Buckets and Gallows–Type Frames.

(a) Hot Asphalt and Hot Pitch Buckets.

(1) Every hot asphalt and hot pitch bucket shall be made of No. 24 gauge or heavier sheet steel and shall have a metal bail of 1/4–inch diameter or larger material. The bail shall be fastened to offset ears, or equivalent, which have been riveted, welded, or otherwise securely attached to the bucket.

(2) Mop buckets shall not have a capacity in excess of 9 1/2 gallons.

(3) Mop buckets shall not be used as carrying buckets.

(4) Carrying buckets shall not have a capacity in excess of 6 gallons.

(b) Gallows–Type Frames.

(1) Gallows–type frames shall be made of "selected lumber," or material of equivalent strength, firmly bolted or nailed together and may be job site fabricated or a manufactured assembly. Construction may be as illustrated in Plate C–18, Appendix, or alternate designs may be used provided equivalent or greater strength is afforded.

(2) Gallows–type frames shall be securely tied back to solid construction on the roof at all times while in use or in the case of designs incorporating counterbalancing means, shall be counterbalanced with items or materials which will not be used in performing the work which is being done during the period the hoist is being used.

(3) If a tieback is used, the tieback shall be of Manila rope not less than 3/4–inch in diameter, or equivalent, tied securely to the tailpiece, stretched tight and lashed to an object on the roof suitable to provide secure anchorage to hold the frame in place when loaded.

(4) Gallows–type frames are for single line hand use and muscle power only. Any attachment of a power system, winch, hoist, or blocks is prohibited.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (b)(4) filed 10–30–81; effective thirtieth day thereafter (Register 81, No. 44).

### § 1730. Roof Hazards.

(a) During roofing operations the employer shall comply with the provisions of Section 1509 and employees shall be trained and instructed in accordance with the provisions of Section 1510 of these orders.

(b) Slopes 0:12 to 4:12—Single–Unit (Monolithic) Roof Coverings.

(1) Employees shall be protected from falls from roofs of a height of more than 20 feet by use of one or a combination of the methods in this section. Whenever felt laying machines or other equipment that is pulled

by an operator who walks backwards is being used, this provision shall apply regardless of the height.

(2) Warning lines consisting of rope, wire or similar material, flagged with highly visible material hanging from the warning lines at approximately 6–foot intervals, shall be installed 34 to 45 inches above the roof surface to warn employees that they are approaching the edge of the roof.

(A) The stanchions (portable or fixed) supporting the warning lines shall be designed and installed to minimize tip over or displacement under normal working conditions.

(B) Warning lines shall have a minimum tensile strength of 500 pounds.

(C) The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

(3) Unless conditions prohibit, headers consisting of sheets of roofing or other roofing materials shall also be laid parallel to the edges of the roof to warn employees that they are approaching the edge of the roof.

(4) The warning lines and headers shall be placed no closer than 5 feet from the roof edge.

(5) When using felt–laying machines or other equipment that is pulled by an operator who walks backwards or motorized equipment on which the operator rides, the headers shall be placed no closer than 10 feet and the warning lines shall be placed no closer than 5 feet from those roof edges that are perpendicular (or nearly so) to the direction in which the operator is moving and when conditions prohibit the use of headers, the warning lines shall be placed no closer than 10 feet from those roof edges that are perpendicular (or nearly so) to the direction in which the operator is moving.

(6) The warning lines and headers shall be erected either around the complete perimeter of the roof or only in areas of the roof where work is being accomplished, so long as the warning lines and headers are moved as the work progresses in such a manner as to provide continuous warning to employees in the work area when they approach the roof edge. Access paths shall be erected as follows:

(A) Points of access, materials handling areas and storage areas shall be connected to the work area by a clear access path formed by two warning lines.

(B) When the path to a point of access is not in use, a rope, wire, or chain, equal in strength and height to the warning line, shall be placed across the path at the point where the path intersects the warning line erected around the work area.

(7) Employees shall be instructed to stay inside the warning lines and headers except when work must be performed at the roof edge.

(8) Application of materials outside the warning lines shall be closely supervised by a qualified person.

(9) On narrow roofs and roofs of unusual shape where warning lines and headers would be impractical, the application of materials shall be closely supervised by a qualified person.

(10) When a felt–laying machine or any other equipment that is pulled by an operator who walks backwards is being used, the operator shall be no closer than 3 feet to the roof edges that are parallel (or nearly so) to the direction in which the operator is moving. Motorized equipment on which the operator rides shall not be used or stored between the warning line and the roof edge.

NOTE: The provisions of subsection (b) do not apply when employees are protected by the use of one or a combination of the following methods:

Personal Fall Protection [Section 1724(f)].

Catch Platforms [Section 1724(c)].

Scaffold Platforms [Section 1724(d)].

Eave Barriers [Section 1724(e)].

Standard Railings and Toeboards (Article 16).

Parapets at least 24 inches high; except that at those job sites where felt–laying machines or other equipment that is pulled by an operator who walks backwards or motorized equipment on which the operator rides is being used, the provisions of this subsection shall not apply provided that the parapet is 36 inches or more in height at those roof edges which are perpendicular (or nearly so) to the direction in which the equipment is moving.

(c) Slopes Greater Than 4:12—Single–Unit (Monolithic) Roof Coverings. Employees shall be protected from falls from roofs of a height of more than 20 feet by use of one or a combination of the following methods:

(1) Parapets, 24 inches or higher.

(2) Personal Fall Protection [Section 1724(f)].

(3) Catch Platforms [Section 1724(c)].

(4) Scaffold Platforms [Section 1724(d)].

(5) Eave Barriers [Section 1724(e)].

(6) Standard Railings and Toeboards (Article 16).

NOTE: The provisions of this subsection (c) do not apply under the following conditions:

At those job sites where motorized equipment on which the operator rides which has been designed for use on roofs of slopes greater than 4:12 is being used if the parapet is 36 inches or more in height at those roof edges which are perpendicular (or nearly so) to the direction in which the equipment is moving.

(d) Equipment Hazards on Sloped Roofs—Single–Unit (monolithic) Roof Coverings. Equipment that is pulled by an operator who walks backwards shall not be used on a roof having a slope greater than 4:12.

(e) Slopes 0:12 Through 5:12—Multiple–Unit Roof Coverings. Employees shall be protected from falls from roofs that are of a height of more than 20 feet by the use of a roof jack system as provided in Section 1724(a), a minimum of 24–inch high parapet, or other method affording equivalent protection.

(f) Slopes Greater Than 5:12—Multiple–Unit Roof Coverings. Employees shall be protected from falls from roofs that are of a height of more than 20 feet by one or a combination of the following methods:

(1) A parapet at least 24 inches high.

(2) Personal Fall Protection [Section 1724(f)].

(3) Catch Platforms [Section 1724(c)].

(4) Scaffold Platforms [Section 1724(d)].

(5) Eave Barriers [Section 1724(e)].

(6) Roof Jack Systems [Section 1724(a)] (Safety lines shall be required in conjunction with roof jack systems on roofs steeper than 7:12)

NOTE: For purposes of Section 1730, the height measurement shall be determined by measuring the vertical distance from the lowest edge of the roof or eaves to the ground or level below. The height of parapets shall not be included in the roof height measurements.

EXCEPTION to Section 1730: Section 1731 applies instead of Section 1730 for roofing work on new production–type residential construction with roof slopes 3:12 or greater.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsections (b)(5) and (b)(9) filed 7–3–80; effective thirtieth day thereafter (Register 80, No. 27).
2. Amendment of subsection (b) filed 8–6–81; effective thirtieth day thereafter (Register 81, No. 32).
3. Amendment of subsections (b)(1), (c), (e) and (f) filed 10–30–81; effective thirtieth day thereafter (Register 81, No. 44).
4. Amendment of subsection (a) filed 12–15–86; effective thirtieth day thereafter (Register 86, No. 51).
5. Editorial correction of subsection (c)(5) (Register 95, No. 41).
6. Amendment of subsections (b)(10), (c)(2) and (f)(2) filed 7–2–98; operative 8–1–98 (Register 98, No. 27).
7. Amendment adding EXCEPTION to subsection (f)(6) filed 3–2–2007; operative 4–1–2007 (Register 2007, No. 9).

## § 1731. Roof Hazards — New Production–Type Residential Construction.

(a) Scope and Application.

(1) This section shall apply only to roofing work on new production–type residential construction with roof slopes 3:12 or greater.

(2) This section does not apply to custom–built homes, re–roofing operations, roofing replacements or additions on existing residential dwelling units.

NOTE: For other roofing operations and slopes less than 3:12, see Section 1730.

(b) Definitions.

Custom–built home. A single detached housing unit built under a single contract.

Eaves. The lowest edge of a sloped roof.

Production-type residential construction. Any new residential housing unit that is not a custom-built home.

Roof. The exterior surface on the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily become the top surface of a building.

Roof slope. For the purposes of this section, the incline angle of a roof surface, given as a ratio of the vertical rise to the horizontal run. For example, a 4:12 roof has 4 feet of vertical rise for 12 feet of horizontal run.

Roof work. The loading and installation of roofing materials, including related insulation, sheet metal that is integral to the roofing system, and vapor barrier work, but not including the construction of the roof deck.

(c) Fall protection for roofing work.

(1) Roof Slopes 3:12 through 7:12: Employees shall be protected from falling when on a roof surface where the eave height exceeds 15 feet above the grade or level below by use of one or any combination of the following methods:

(A) Personal Fall Protection (Section 1670).

(B) Catch Platforms [Section 1724(c)].

(C) Scaffold Platforms [Section 1724(d)].

(D) Eave Barriers [Section 1724(e)].

(E) Standard Railings and Toeboards (Article 16).

(F) Roof Jack Systems [Section 1724(a)].

(2) Roof Slopes Steeper than 7:12: Employees shall be protected from falling by methods prescribed in Subsections (c)(1)(A), (B), (C), or (E) regardless of height.

(d) Training.

(1) In addition to training required by Sections 1509 and 3203, each affected employee shall be trained to ensure specific awareness of the fall hazards associated with roofing work, including, but not limited to:

(A) Work on or near gable ends,

(B) Slipping hazards,

(C) Roof holes and openings,

(D) Skylights,

(E) Work on ladders and scaffolds,

(F) Access to roof,

(G) Placement and location of materials on the roof,

(H) Impalement hazards, and

(I) Care and use of fall protection systems.

(2) Documentation of employee training shall be maintained as required by Section 3203 of the General Industry Safety Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 3-2-2007; operative 4-1-2007 (Register 2007, No. 9).

## Article 31. Demolition

### § 1733. Permits.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 8-1-74 as an emergency; effective upon filing (Register 74, No. 31).
2. Certificate of Compliance filed 11-22-74 (Register 74, No. 48).
3. Certificate of Compliance refiled 11-27-74 (Register 74, No. 48).
4. Repealer and new section filed 11-29-74; effective thirtieth day thereafter (Register 74, No. 48).
5. Repealer filed 12-4-86; effective thirtieth day thereafter (Register 86, No.49).

### § 1734. Supervision.

(a) Demolition work shall at all times be under the immediate supervision of a qualified person with the authority to secure maximum safety for employees engaged in demolition work.

(b)(1) Prior to permitting employees to start demolition operations, a qualified person shall make a survey of the structure to determine the condition of the framing, floors, and walls, and the possibility of an unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked.

(2) The survey shall be in written form, kept on the job-site and made available to the Division upon request. The written survey shall be maintained for the duration of the demolition project.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsection (b) filed 2-11-72; effective thirtieth day thereafter (Register 72, No. 7).
2. Amendment filed 12-4-86; effective thirtieth day thereafter (Register 86, No. 49).
3. Amendment of subsection (a) and newly designated subsection (b)(1) and new (b)(2) filed 5-22-95; operative 6-21-95 (Register 95, No. 21).

### § 1735. Demolishing Buildings.

(a) Utility companies shall be notified and all utility service shut off, capped, or otherwise controlled, at the building or curb line before starting demolition, unless it is necessary to use electricity or water lines during demolition. If use is necessary, the utility services shall be relocated or rearranged as necessary and protected from physical damage.

(b) It shall also be determined if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated before demolition is started.

(c) Pipe-covering insulation, steel beam and column fire protection, and heating, ventilating and air-conditioning duct work shall be surveyed for asbestos. If asbestos is present, the employer shall comply with Section 1529.

(d)(1) Prior to starting demolition operations, all structural or other hazardous deficiencies noted during the survey required by Section 1734(b)(1) shall be shored, braced or otherwise corrected as recommended in the survey.

(2) Walls, which serve as retaining walls to support earth or adjoining structures, shall not be demolished until the hazard from moving ground has been eliminated by sloping, shoring or, where necessary, adjoining structures have been properly underpinned.

(3) Walls, which are to serve as retaining walls against which debris will be piled, shall not be so used unless determined to be capable of safely supporting the imposed load.

(4) During demolition, continuing inspections shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors or walls, or loosened material.

Employees shall not be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

(e) In demolishing any building or structure or alteration involving partial demolition thereof, all material displaced, unless required for reconstruction, shall be transported immediately to the ground. The amount of material stored upon any structure or any portion of such structure shall not exceed its safe carrying capacity.

(f)(1) Except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work, the demolition of exterior walls and floor construction shall begin at the top of the structure and proceed downward and each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing the removal of exterior walls and floors in the story next below.

(2) Any openings cut in a floor for the disposal of materials shall be no larger in size than 25 percent of the aggregate of the total floor area, unless the lateral supports of the removed flooring remain in place. Floors weakened or otherwise made unsafe by demolition operations shall be shored to safely support the intended imposed load from demolition operations.

(3) Flooring boards may be removed from not more than one floor above grade to provide storage space for debris, provided falling material is not permitted to endanger structural stability.

(4) When wood floor beams serve to brace interior walls or free-standing exterior walls, such beams shall be left in place until other equivalent support can be installed to replace them.

NOTE: For selective demolition by explosives of buildings and structures, refer to appropriate Articles of Group 18, Explosives and Pyrotechnics of the General Industry Safety Orders and this Article.

(g) Sections of walls shall not be allowed to fall upon floors supported by wood joists or other floors unable to withstand such impact.

(h) Walkways that meet the requirements of Section 1624 shall be provided where necessary for access.

(i) Walking across exposed floor joists, steel beams, or girders is prohibited.

(j) All persons on demolition projects shall be protected from falling material at employee entrances to multi-story structures being demolished, by sidewalk sheds or canopies or both, providing protection extending from the face of the building for a minimum of 8 feet. All such canopies shall be at least two feet wider than the building entrances or openings (one foot wider on each side thereof) and shall be capable of sustaining a load of 150 pounds per square foot.

(k) Exterior wall openings on all floors shall be protected to a height of not less than 42 inches, except on the ground floor and the floor being demolished.

(*l*) Where a hazard exists from fragmentation of glass, all glazed openings shall be removed at least one floor below the working level.

(m)(1) No wall section, which is more than one story or 12 feet in height, shall be permitted to stand alone without lateral bracing, unless a civil engineer, currently registered in California, has submitted engineering data to the Division substantiating the capability of the wall to stand without lateral support.

(2) All walls shall be left in a stable condition at the end of each work day.

(n) Steel construction shall be dismantled column length by column length, and tier by tier (columns may be two-story lengths.) Any structural unit being dismantled shall not be overstressed.

(o) Planks spanning the distance between adequate beams shall be used where necessary as a substitute for weakened floors, and as access walkways over open or weakened areas.

When demolishing floors and roofs, employees shall be prohibited from working below this activity. Demolition of floor spaces shall continue until all unsupported flooring is removed. When employees are required to remove floor support beams, wall sections, etc., by hand, scaffolding as described in Article 21 of the Construction Safety Orders or elevating work platforms and aerial devices as described in Article 24 of the General Industry Safety Orders shall be provided and used where necessary to insure employee safety.

(p)(1) Stairways designated as means of access shall be maintained clear for use within two floors or twenty-four feet of the demolition work above.

(2) Ladders shall be provided for these remaining two floors and shall be constructed and maintained in accordance with Article 25, Ladders. Other access ways shall be entirely closed off at all times.

(3) Walkways or ladders shall be provided to enable employees to safely reach or leave any scaffold or wall.

(g) In a multi-story building, when a stairwell is being used for access or egress, it shall be properly illuminated by either natural or artificial means, and completely and substantially covered over at a point not less than two floors below the floor on which work is being performed, and access to the floor where the work is in progress shall be through a properly lighted, protected, and separate passageway.

(r)(1) Construction passenger elevators for hoisting employees shall be provided on demolition projects on multi-story buildings seven or more floors or seventy-two feet or more in height.

(2) Landings shall be provided for the passenger elevators on or in buildings at intervals not to exceed four floors or forty-eight feet.

(3) Where there is doubt concerning structural integrity or engineering data indicates attachment of an elevator may jeopardize the strength of the building or structure, the Division may permit alternate methods of installation. Other means of employee access may also be allowed by the Division where the above is clearly impractical.

(s) If the method of demolition leaves the structural steel frame in place, then the tier of beams next below the tier from which beams and columns are being removed shall be planked over, unless safety nets are used or the floor of such tier has not been removed. Necessary openings for material handling are allowed. All loose material shall be removed from the steel frame as demolition progresses downward.

(t) Provisions for dust control shall include the use of water to keep material or debris sufficiently wet or other equivalent steps taken to prevent dust from rising.

(u) Mechanical equipment shall not be used on floors or working surfaces unless a qualified person has determined that such floors or surfaces are of sufficient strength to support the imposed load.

(v) Where mechanical equipment is used for demolition work, floor openings shall have curbs or stop-logs to prevent equipment from running over the edge.

(w) No salvage of materials shall be permitted during demolition operations on any building, structure, falsework or scaffold more than three stories high or the equivalent height for which a permit is required.

NOTE: For mechanical demolition of buildings and structures, refer to appropriate sections of Article 10 of the Construction Safety Orders, Article 93 of the General Industrial Safety Orders, and this Article.

NOTE: Authority cited: Sections 142.3, Labor Code. Reference: Sections 142.3 and 6401.5, Labor Code.

HISTORY

1. Amendment filed 2-11-72, effective thirtieth day thereafter (Register 72, No. 7).
2. Amendment filed 5-21-75, effective thirtieth day thereafter (Register 75, No. 21).
3. Amendment of subsection (n) filed 10-18-77; effective thirtieth day thereafter (Register 77, No. 43).
4. New subsection (z) filed 4-3-78; effective thirtieth day thereafter (Register 78, No. 13).
5. Amendment filed 12-4-86; effective thirtieth day thereafter (Register 86, No. 49).
6. Editorial correction of printing error in subsection (o) (Register 92, No. 33).
7. Amendment filed 5-22-95; operative 6-21-95 (Register 95, No. 21).

## § 1736. Disposal of Waste Material.

(a) Whenever waste material is dropped to any point lying outside the exterior walls of the building, enclosed chutes shall be used unless the area is effectively protected by barricades, fences or equivalent means. Signs shall be posted to warn employees of the hazards of falling debris.

(b) When chutes are used to load trucks, they shall be fully enclosed. Gates shall be installed in each chute at or near the discharge end. A qualified person shall be assigned to control the operation of the gate, and the backing and loading of trucks.

(c) Enclosed chutes should be designed for free flow of material, but if clogging or stoppages occur, employees shall not remove material from the chutes with their hands. Picks or other suitable implements shall be used for this purpose.

(d) Any chute opening, into which employees dump debris by hand, shall be protected by a guardrail. Any open spaces between the chute and the edge of floor openings through which the chute passes shall be covered over.

(e) When operations are not in progress, the discharge end of the chute shall be securely closed off, or the area barricaded or fenced as provided in Section 1736(a).

(f) When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high, and not less than six feet back from the projected edge of the opening above. Signs warning of the hazard of falling materials shall be posted at each level. Debris removal shall not be permitted in this lower drop area until debris handling ceases above.

(g) All scrap lumber, waste material, and rubbish shall be removed from the immediate work area as the work progresses.

(h) All solvent waste, oily rags, and flammable liquids shall be kept in fire resistant covered containers until removed from the work site.

(i)(1) Where the material is dumped from mechanical equipment or wheelbarrows, a securely attached toeboard or bumper, not less than six inches thick and six inches high, shall be provided at each chute opening.

(2) Chutes shall be designed and constructed of such strength as to eliminate failure due to impact of materials or debris loaded therein.

(j) All material chutes, or sections thereof, at an angle of more than 45 degrees from the horizontal, shall be entirely enclosed, except for openings equipped with closures at or about floor level for the insertion of materials. The openings shall not exceed 48 inches in height measured along the wall of the chute. At all stories below the top floor, such openings shall be kept closed when not in use.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 2-11-72; effective thirtieth day thereafter (Register 72, No. 7).
2. Amendment of subsection (b) and new subsection (h) filed 5-21-75; effective thirtieth day thereafter (Register 75, No. 21). for specific requirements involving permit requirements, see the Unfired Pressure Vessel Safety Orders.
3. Amendment filed 12-4-86; effective thirtieth day thereafter (Register 86, No. 49).
4. Amendment of section heading, subsections (a)–(c), new subsection (d), subsection relettering, amendment of newly designated subsections (e)–(f) and (i)(1), and new subsection (j) filed 5-22-95; operative 6-21-95 (Register 95, No. 21).

### § 1737. Fire Prevention.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 2-11-72; effective thirtieth day thereafter (Register 72, No.7).
2. Amendment filed 11-14-75; effective thirtieth day thereafter (Register 75, No. 46).
3. Repealer filed 12-4-86; effective thirtieth day thereafter (Register 86, No.49).

## Article 32. Oxygen, Acetylene, and Fuel Gas

### § 1739. Permit to Operate.

HISTORY

1. Repealer filed 1-18-78; effective thirtieth day thereafter (Register 78, No. 3).

### § 1740. Storage and Use of Cylinders.

(a) All gas cylinders shall be protected against undue absorption of heat.

(b) Acetylene and Fuel gas cylinders, including but not limited to welding and cutting fuel gas cylinders, shall be stored and used with the valve end up.

EXCEPTION: Fuel gas cylinders containing fuel gas used to power industrial trucks regulated by Article 25 of the General Industry Safety Orders.

Cylinders containing oxygen, acetylene or fuel-gases shall not be taken into confined spaces.

(c) Gas cylinders in portable service shall be conveyed by suitable hand trucks to which they are securely fastened, or safely carried where job conditions require. All gas cylinders in service shall be securely held in substantial fixed or portable racks, or placed so they will not fall or be knocked over.

Valve protection caps, when provided for, shall be put in place before cylinders are moved, transported or stored.

(d) Gas cylinders raised or lowered by crane, hoist, or derrick must be handled in suitable cradles, nets, or skip boxes, and shall never be lifted by magnet or by rope or chain slings.

(e) Cylinders must not be placed where they might form a part of any electric circuit.

(f) No attempt shall be made to transfer acetylene from one cylinder to another, or to mix gases in a cylinder.

(g) Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.

(h) Cylinders shall be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them. When this is impractical, fire resistant shields shall be provided.

(i) LP-Gas vessels used for roofer's tar pots, plumber's pots and torches, space heaters, etc., shall be so installed that heat from the burner will not increase the temperature of the tank more than 10 degrees Fahrenheit after one hour of operation of the burner at full capacity.

(j) LP-Gas vessels installed on mobile equipment shall have the bottom of the container, and/or any outlet connection, not lower than the lowest horizontal edge of the vehicle axle when fully loaded. Such units shall be adequately secured to prevent jarring loose, slipping, or rotating.

(k) Use of Fuel Gas.

(1) The employer shall instruct employees in the safe use of fuel gas.

(2) Before a regulator to a cylinder valve is connected, the valve shall be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.)

(3) The person cracking the valve shall stand to one side of the outlet, not in front of it. The valve of a fuel gas cylinder shall not be cracked where the gas would reach welding work, sparks, flame, or other possible sources of ignition.

(*l*) The cylinder valve shall be opened slowly to prevent damage to the regulator. For quick closing, valves on fuel gas cylinders shall not be opened more than 1 1/2 turns. When a special wrench is required, it shall be left in position on the stem of the valve while the cylinder is in use so that the fuel gas flow can be shut off quickly in case of an emergency. In the case of manifolded or coupled cylinders, at least one such wrench shall be available for immediate use. Nothing shall be placed on top of a fuel gas cylinder, when in use, which may damage the safety device or interfere with the quick closing of the valve.

(m) When the valve on a fuel gas cylinder is opened and there is found to be a leak around the valve stem, the valve shall be closed and the gland nut tightened. If this action does not stop the leak, the use of the cylinder shall be discontinued, and it shall be properly tagged and removed from the work area. In the event that fuel gas should leak from the cylinder valve, rather than from the valve stem, and the gas cannot be shut off, the cylinder shall be properly tagged and taken outdoors, to an isolated area, away from personnel and sources of ignition. The supplier shall promptly be notified of the leaking cylinder valve and the supplier's instructions shall be followed.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 5-21-75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment filed 1-5-87; effective thirtieth day thereafter (Register 87, No. 2).
3. Amendment of subsection (m) filed 1-6-99; operative 2-5-99 (Register 99, No. 2).
4. Amendment of subsection (b) filed 8-21-2007; operative 9-20-2007 (Register 2007, No. 34).

### § 1741. Pressure Regulators.

Regulators that reduce the vapor pressure of fuel gas to not more than 20 psi are required for all installations within structures or confined spaces unless the burner or appliance specifically requires a higher pressure and equivalent safety is provided. The use of regulators or automatic pressure-reducing valves shall be limited to the pressures and the types of gases for which they were designed. Regulators are required for installations where a fuel gas hose is between fuel source and burner.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 1-5-87; effective thirtieth day thereafter (Register 87, No. 2).

### § 1742. Hose and Connections.

(a) Fuel gas hose and oxygen hose shall be easily distinguished from each other. Note: The contrast may be made by different colors or by surface characteristics readily distinguishable by the sense of touch.

(b) A single hose having more than 1 gas passage shall not be used as a connection between torch and gas outlet if a wall failure would permit the flow of either gas into the other passage.

(c) Hoses used for liquefied petroleum gas, such as butane or propane, shall be of, or lined with, materials that are resistant to the action of LP–Gas. They shall be designed for a bursting pressure of at least 1,250 psi, and shall be marked every 5 feet with the letters "LPG." Hoses over 1/2 inch diameter shall also be marked with the manufacturer's name.

(d) The connection between fuel source and burner shall be with extra heavy steel pipe (Schedule 80), flexible metallic tubing or hose suitable for the service, and where exposed shall be protected against physical damage.

(e) When not in use, manifold and header hose connections shall be capped.

(f) When parallel sections or oxygen and fuel gas hose are taped together, not more than 4 inches out of 12 inches shall be covered by tape.

(g) Hose couplings shall be of the type that cannot be unlocked or disconnected by means of a straight pull without rotary motion.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New subsections (e)–(g) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment of subsections (a), (b) and (d) filed 1–5–87; effective thirtieth day thereafter (Register 87, No. 2).

### § 1743. General Precautions.

(a) No device or attachment facilitating or permitting mixture of air or oxygen with combustible gases prior to consumption, except at the burner or in a standard torch or blowpipe, shall be allowed unless approved for the purpose.

(b) Acetylene shall not be generated or utilized at a pressure in excess of 15 pounds per square inch gauge pressure.

EXCEPTION: Acetylene dissolved in suitable solvent and stored in cylinders manufactured according to Interstate Commerce Commission requirements.

(c) Oxygen cylinders and fittings shall be kept away from oil or grease. Cylinders, cylinder caps and valves, couplings, regulators, hose, and apparatus shall be kept free from oil or greasy substances and shall not be handled with oily hands or gloves. Oxygen shall not be directed at oily surfaces, greasy clothes, or within a fuel oil or other storage tank or vessel.

(d) Hose piping systems, apparatus, and fittings shall not be used.

(e) Oxygen shall never be used from a cylinder or cylinder manifold unless a pressure–reducing device intended for use with oxygen, and so marked, is provided.

(f) Acetylene shall never be brought into contact with unalloyed copper except in a blowpipe or torch.

(g) Cylinders not having fixed hand wheels shall have keys, handles or nonadjustable wrenches on valve stems while these cylinders are in service. In multiple cylinder installations only one key or handle is required for each manifold.

(h) Cylinders shall never be used as rollers or supports whether full or empty.

(i) Compressed oxygen shall not be used for ventilation, testing, or similar purposes different from its intended function in welding and burning.

(j) A dry chemical or carbon dioxide fire extinguisher rated at least 10 B:C shall be kept near operations where bottled fuel gases are being used.

(k) LP–Gas vessels shall be kept in a position so that the safety relief valve is in direct contact with the vapor space in the vessel at all times.

(*l*) When operations are suspended for any substantial period of time, such as during lunch or overnight, gas cylinders shall be shut off. The torch and hose shall be removed from the confined space. Upon completion or discontinuance of welding operations, the welder shall warn other workers of the location of hot metal.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 1–5–87; effective thirtieth day thereafter (Register 87, No. 2).

## Article 33. Electrical Requirements for Construction Work

### § 1760. Scope.

All electrical work shall be performed in accordance with the following provisions of the Electrical Safety Orders, Title 8, California Administrative Code, which are hereby expressly incorporated by reference. A subsequent repeal or amendment to any of these incorporated provisions shall also repeal or amend the incorporated provision as it applies pursuant to this section unless the Board indicates an exception for the construction industry.

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2936. Passageway and Open Spaces
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NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of Article 33 (Sections 1760–1768) filed 12–19–78; effective thirtieth day thereafter (Register 79, No. 1). For prior history, see Registers 70, No. 48; 73, No. 30; 74, No. 28.
2. New Article 33 (Section 1760) filed 12–19–78; effective thirtieth day thereafter (Register 79, No. 1).
3. Amendment filed 3–16–83; effective thirtieth day thereafter (Register 83, No. 12).
4. Editorial correction filed 5–12–83; effective thirtieth day thereafter (Register 83, No. 20).

## Article 34. Nonionizing Radiation

### § 1800. Scope.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering of former Article 34 to Article 35 and new Article 35 (§§ 1800 through 1813) filed 2–14–73; effective thirtieth day thereafter (Register 73, No. 7).
2. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1801. Nonionizing Radiation.

(a) Only qualified and trained employees shall be assigned to install, adjust, and operate laser equipment.

(b) Proof of qualification of the laser equipment operator shall be available and in possession of operator at all times.

(c) Employees, when working in areas in which a potential exposure to direct or reflected laser light greater than 0.005 watt (5 milliwatts) exists, shall be provided with antilaser eye protection devices as specified in Section 3382(e) of the General Industry Safety Orders.

(d) Areas in which lasers are used shall be posted with laser warning signs and labels in accordance with American National Standards Institute (ANSI) Z136.1–2000, American National Standard for Safe Use of Lasers, Section 4.7, which is hereby incorporated by reference.

(e) Beam shutters or caps shall be utilized, or the laser turned off, when laser transmission is not actually required. When the laser is left unattended for a substantial period of time, such as during lunch hour, overnight, or at change of shifts, the laser shall be turned off.

(f) Only mechanical or electronic means shall be used as a detector for guiding the internal alignment of the laser.

(g) The laser beam shall not be directed at employees.

(h) When it is raining or snowing, or when there is dust or fog in the air, the operation of laser systems shall be prohibited where practicable; in any event, employees shall be kept out of range of the area of source and target during such weather conditions.

(i) Laser equipment shall bear a label to indicate maximum output.

(j) Employees shall not be exposed to light intensities above:

(1) Direct staring: 1 micro–watt per square centimeter;

(2) Incidental observing: 1 milliwatt per square centimeter;

(3) Diffused reflected light: 2 1/2 watts per square centimeter.

(k) Employees shall not be exposed to microwave power densities in excess of 10 milliwatts per square centimeter.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).
2. Amendment of subsection (d) filed 8–25–97; operative 9–24–97 (Register 97, No. 35).
3. Amendment of subsections (c) and (d) filed 4–27–2007; operative 5–27–2007 (Register 2007, No. 17).

### § 1802. Eye and Face Protection.

HISTORY

1. Repealer filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).

### § 1803. Fire Prevention.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1804. Arc Welding and Cutting.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1805. Fire Prevention.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1806. Base–Mounted Drum Hoists.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1807. Overhead Hoists.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1808. Conveyors.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1809. Marine Operations and Equipment.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1810. Bolting, Riveting, Fitting–Up and Plumbing.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of Section 1810 to section 1716 filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1811. Cofferdams.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

### § 1812. Underwater Blasting.

HISTORY

1. Repealer filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).

### § 1813. Blasting in Excavation Work Under Compressed Air.

HISTORY

1. Repealer filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).

## Article 35. Helicopter Operations

### § 1900. Scope.

These orders shall establish minimum safety standards for the use of helicopters. These orders do not supersede any of the regulations administered by the F.A.A., the California Division of Aeronautics, and City or County entities.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Article 35 (Sections 1900–1909, not consecutive) filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13). For former Article 35, see "Appendices" following Article 35 (Register 75, No. 13).
2. Amendment of NOTE filed 2–1–85; effective thirtieth day thereafter (Register 85, No. 5).

### § 1901. General Requirements.

(a) Prior to the start of any operation involving the use of a helicopter, a thorough survey of the conditions and hazards on the job site shall be made by the employer in conjunction with the pilot or pilot's representative to ensure a safe operation.

(b) A Code Of Safe Practices shall be formulated and enforced for operations involving the use of a helicopter. This code shall include, but is not limited to, the safe practices presented in Appendix Plate C–36–a.

(c) A daily briefing shall be conducted prior to starting work to set forth the plan of operation for that day. This briefing shall include planning to minimize possible hazards of the day's operation and all personnel exposed shall be informed and directed as to safeguards and escape procedures.

(d) If the helicopter pilot in command for any reason believes that a lift or operation cannot be performed safely, then that lift or operation shall not be attempted.

(e) Helicopter operations shall not be performed beyond the helicopter's approved external load capacity or pilot's certification. The pilot's employer shall ascertain before operations begin that the pilot is properly certificated by the F.A.A. and qualified to perform the planned operations.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 2–1–85; effective thirtieth day thereafter (Register 85, No. 5).
2. Amendment of subsection (e) filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1903. Landing Operations.

(a) Landing and hovering sites shall be chosen with approval of the pilot or pilot's representative.

(b) All such sites shall have at least a 200–foot diameter area clear of all loose materials and objects which could be hazardous if displaced by rotor downwash. The helicopter shall be required to deposit or lift loads in the center of the approved area.

(c) Precautions shall be taken by the employer to eliminate as far as practical reduced visibility.

(d) Access and egress to the helicopter shall be from the front and along the same level or to a level lower than the helicopter. No one shall be permitted to approach or leave the helicopter while the engine is running or the rotor is turning without a permissive signal or instruction from the pilot or pilot's designee.

(e) Built–up landing sites shall be capable of supporting a helicopter on any single square foot of the landing surface and provide good footing.

(f) Prepared landing sites on hillsides shall be no less than 12 feet by 12 feet and shall be large enough to land the helicopter so that the largest rotor clears the hillside by a distance equal to its radius measured horizontally from the tip of the rotor.

NOTE: Except in emergency.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 2–1–85; effective thirtieth day thereafter (Register 85, No. 5).
2. Amendment of subsection (b) filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

### § 1904. Static Electricity.

An effective method of protecting workers from static electrical discharge shall be provided.

NOTE: See Appendix for a recommended method.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 2–1–85; effective thirtieth day thereafter (Register 85, No. 5).

### § 1905. Fueling.

(a) The engines and radio transmitters shall be shut off, and smoking, open flame or other source of ignition shall not be permitted within 50 feet of fueling operations or fuel storage areas.

NOTE: Except for F.A.A. approved alternate fueling methods or closed circuit hot refueling.

(b) The helicopter and fuel supply shall be securely bonded and grounded before and during fueling operations for static electrical discharge.

(c) There shall be two 60B:C rated fire extinguishers or equivalent fire fighting protection at each fueling station attended by ground crews.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

History
1. Amendment filed 2-1-85; effective thirtieth day thereafter (Register 85, No. 5).

### § 1906. Communications.

(a) During helicopter operations, the pilot shall be notified at least 30 minutes prior to any blasting operation on the project and also after each blast to signify the all-clear condition.

(b) The pilot shall be informed by the person in charge of the project of the erection of any newly suspended line or other navigational hazard on the project or in the area of helicopter operations.

(c) Signal systems between air crew and ground personnel shall be understood and checked in advance of hoisting the load. Hand signals shall be as shown in Plate C-36-c Appendix.

(d) The pilot shall receive signals from only one signal person who is distinguishable from the rest of the crew.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

History
1. Amendment filed 2-1-85; effective thirtieth day thereafter (Register 85, No. 5).

### § 1907. Ground Crew.

(a) All ground crewmembers shall be thoroughly instructed by the pilot or pilot's representative in their duties and of the immediate hazards. Escape procedures shall be planned with the pilot or pilot's representative in event of helicopter failure.

(b) Ground crewmembers shall wear dust goggles for eye protection and approved head protection with chin straps in place. Ear protection and dust protection where required shall be in accordance with applicable safety orders.

(c) Only those persons associated with the helicopter operations shall be permitted to approach within 50 feet of the operating helicopter.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

History
1. Amendment filed 2-1-85; effective thirtieth day thereafter (Register 85, No. 5).

### § 1908. Cargo Loading and Handling.

(a) All cargo shall be loaded and secured under the direction of the pilot or pilot's designee.

(b) No passenger shall be transported in the helicopter with a sling load and no person shall be transported as an external or sling load, except in an emergency.

EXCEPTION: Unless authorized by the F.A.A.

(c) Explosives and other "dangerous materials" shall not be transported except as authorized by F.A.A.

(d) All sling loads, including line stringing devices, shall be attached only to quick-release devices. Steel or metallic sling ends shall be of the pressed sleeve or swedged eye-type, or equivalent. Tag lines shall be of a length or secured in such a manner that will not allow their being drawn up into the rotors.

(e) Automatic release devices are prohibited in all construction operations where ground crews are used. The devices shall be activated only for actual placement of loads. Electrical release devices shall have mechanical back-up, be checked each day of operation, and be designed to prevent inadvertent operation.

(f) When stringing conductive lines or conductors, there shall be radio communication between the helicopter and the ground crew.

(g) When stringing lines or conductors close to or parallel to energized lines, conductive lines or reels, pay-out machines, and conductors shall be grounded as required by the High Voltage Electrical Safety Orders. Hoist wires or other gear shall not be attached to any fixed ground structure.

EXCEPTION: When pulling lines or conductors that are allowed to "pay-out" from a container or roll off a reel.

(h) External sling load operations shall not be performed if electrical storms in the immediate vicinity make the work unsafe.

(i) Load landing operations shall not be performed when the wind conditions are deemed too unsafe by the pilot or ground crew.

(j) There shall be a minimum clearance of at least 25 feet between any energized power line, rated 50 KV or below, and any part of the rotorcraft load combination. This clearance requirement shall increase at the rate of 1/2 inch for each 1 KV.

EXCEPTION: These minimum clearances shall not apply to helicopters or their external loads specifically utilized for power line construction, maintenance, and repair where the work in progress is under the direct supervision of the utility.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

History
1. Amendment filed 2-1-85; effective thirtieth day thereafter (Register 85, No. 5).

### § 1909. Exposed Locations.

(a) While working at the edge of or on a steep slope, members of ground crews shall be protected from falling by:

(1) A barrier of adequate design to restrain a falling person or;

(2) A safety belt with a quick-release buckle and a life line at least 50 feet long.

(A) Where practicable when using safety belts, the area shall be cleared of objects which might snag the life lines in an escape procedure. (See Plate C-36-b, Appendix.)

(b) Workers receiving materials while on a tower-type structure shall not be positioned in a place of unnecessary exposure and shall be secured to the structure by safety belts or other equivalent protection.

(c) Ground crews on elevated surfaces more than 7 1/2 feet high, shall be protected against being swept off by rotor downwash. (See Plate C-36-b, Appendix.)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

History
1. Amendment filed 2-1-85; effective thirtieth day thereafter (Register 85, No. 5).

## Article 36. Fire Protection and Prevention

### § 1920. General Requirements.

(a) The employer shall be responsible for the development of a fire protection program to be followed throughout all phases of the construction work; and he shall provide for the fire fighting equipment as specified in this Article. As fire hazards occur, there shall be no delay in providing the necessary fire protection and/or prevention equipment.

NOTE: In cases where orders of local jurisdiction are more restrictive, those orders shall prevail.

(b) A safe and unobstructed access to all available fire fighting equipment shall be maintained at all times.

(c) All fire fighting equipment, provided by the employer, shall be conspicuously located or the location conspicuously marked.

(d) All fire fighting equipment shall be maintained in operating condition. Defective equipment shall be immediately replaced.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

History
1. New Article 36 (Sections 1920-1937, not consecutive) filed 11-14-75; effective thirtieth day thereafter (Register 75, No. 46).
2. Amendment of subsection (d) filed 10-9-86; effective thirtieth day thereafter (Register 86, No. 43).

### § 1921. Water Supply.

(a) A temporary or permanent water supply, of sufficient volume, duration, and pressure, required to properly operate the fire fighting equipment as required by these orders shall be made available as soon as combustible materials accumulate.

(b) Where underground water supply lines are to be provided, they shall be installed, completed, and made available for use as soon as practicable.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 10–9–86; effective thirtieth day thereafter (Register 86, No. 43).

## § 1922. Portable Fire Fighting Equipment.

(a) Fire Extinguishers and Small Hose Lines.

(1) A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of the floor area, or fraction thereof. Where the floor area is less than 3,000 square feet at least one extinguisher shall be provided. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 75 feet.

One 55–gallon open container of water with two fire pails may be substituted for a fire extinguisher having a 2A rating.

A 3/4–inch diameter garden–type hose line, not to exceed 75 feet in length and equipped with an adjustable nozzle, may be substituted for a 2A–rated fire extinguisher, provided it is connected to a reliable water pressure system capable of discharging a minimum, continuous flow of 5 gallons per minute with a minimum hose stream range of 30 feet horizontally. The garden–type hose lines shall be mounted on conventional racks or reels. The number and location of hose racks or reels shall be such that at least one hose stream can be applied to all points in the floor area.

At least one fire extinguisher rated not less than 2A, shall be provided on each floor. In multi–story buildings, at least one fire extinguisher shall be located adjacent to the stairway at each floor level.

EXCEPTION: Single family residential dwellings other than apartments, lodging houses, hotels or dormitories provided that there is at least one fire extinguisher rated not less than 2A, or the equivalent, available at the job site during working hours.

(2) Extinguishers and water containers subject to freezing shall be protected from freezing.

(3) A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used on the job site. This requirement does not apply to the integral fuel tanks of motor vehicles.

(4) Portable fire extinguishers shall be inspected monthly, or at more frequent intervals, and serviced at least annually by a person licensed or registered by the State Fire Marshal as required by the Health and Safety Code, Division 12, Part 2, Chapter 1.5, Articles 2, 3, and 6.

NOTE: Inspection is a "quick check" that an extinguisher is available and will operate. It is intended to give reasonable assurance that the extinguisher is fully charged and operable. This is done by seeing that it is in its designated place, that it has not been actuated or tampered with, and that there is no obvious or physical damage or condition to prevent operation.

NOTE: Service as defined in the State Fire Marshal's regulations pertains to the act of charging, recharging, inspecting, repairing, and hydrostatic testing of any portable fire extinguisher.

(5) The selection of extinguishers for a given situation will depend upon the character of the fires anticipated, the construction and occupancy of the individual property, the vehicle or hazard to be protected, ambient temperature conditions, and other factors. The number of extinguishers required shall be determined by reference to Section 6151 of the General Industry Safety Orders. Portable fire extinguishers shall be limited to those listed or bearing labels of the Underwriters' Laboratory or laboratories approved by the State Fire Marshal. (See Table A–2–1, NFPA 10–1984)

(b) Fire Hose and Connections.

(1) Up to 100 feet of 1 1/2–inch hose, with a nozzle capable of discharging a continuous flow of water at 25 gallons or more per minute may be substituted for a fire extinguisher rated not more than 2A in the designated area provided that the hose line can reach all points in the floor area.

(2) If fire hose connections are not compatible with local fire fighting equipment, the contractor shall provide adapters, or equivalent, to permit connections.

NOTE: For demolition in construction, see Section 1737, "Fire Prevention."

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
2. Editorial correction of subsection (a)(4) filed 6–10–83 (Register 83, No. 24).
3. Amendment of subsection (a) filed 10–9–86; effective thirtieth day thereafter (Register 86, No. 43).

## § 1923. Fixed Fire Fighting Equipment.

(a) Sprinkler Protection.

(1) If the facility being constructed includes the installation of automatic sprinkler protection which is proposed to be used in lieu of temporary protection, the installation shall closely follow the construction and be placed in service as soon as applicable laws permit following completion of each story.

(2) During demolition or alterations, existing automatic sprinkler installations shall be retained in service as long as reasonable. The operation of sprinkler control valves shall be permitted only by qualified persons. Modification of sprinkler systems to permit alterations or additional demolition should be expedited so that the automatic protection may be returned to service as quickly as possible. Sprinkler control valves shall be checked daily to ascertain that the protection is in service.

(3) During the construction of a building and until the permanent fire extinguishing system has been installed and in service, fire protection shall be provided in accordance with these orders.

(b) Standpipes.

(1) In all structures in which standpipes are required, or where standpipes exist in structures being altered, they shall, unless replaced by temporary construction protection, be brought up as soon as applicable laws permit, and shall be maintained as construction progresses in such a manner that they are always ready for fire protection use. The standpipes shall be provided with Siamese fire department connections on the outside of the structure, at the street level and shall be conspicuously marked and accessible. There shall be at least one standard hose outlet at each floor. These installations, when planned as part of the permanent installation, shall meet the applicable requirements of Articles 158 and 159 of the General Industry Safety Orders.

(2) Every building six (6) stories or more in height shall be provided with not less than one operable standpipe. Such standpipes shall be installed when the progress of construction is not more than 50 feet in height above grade. Such standpipes shall be provided with fire department outlet connections at accessible locations adjacent to usable stairs. Such standpipe systems shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

Where permanent fire protection equipment is required by local jurisdiction, it may be used during construction provided it is constructed concurrently and progressively with the structure and is maintained operational and accessible.

(3) Every floor shall be provided with not less than one 2 1/2–inch valve outlet for fire department use. Where construction height requires installation of a combination standpipe, fire pumps and water connections shall be provided to serve the standpipe.

NOTE: For specific requirements for portions of the fire protection system not contained in these orders, refer to Article 158 of the General Industry Safety Orders or consult with the local fire authorities.

(4) Temporary standpipes may be provided in place of permanent systems if they are designed to furnish a minimum continuous flow of 75 gallons of water per minute at 50 pounds per square inch pressure with a standpipe size of not less than 4 inches. All outlets shall be not less than 2 1/2 inches. Pumping equipment sufficient to provide this pressure and volume shall be available at all times when a combination system is required.

(5) Standpipe systems for buildings under construction, if a part of the permanent system, shall be installed as required for permanent standpipe

systems and meet the applicable requirements of Articles 158 and 159 of the General Industry Safety Orders.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (b) filed 10-9-86; effective thirtieth day thereafter (Register 86, No. 43).

### § 1924. Fire Alarm Devices.

(a) An alarm system, e.g., telephone system, siren, etc., shall be established by the employer whereby employees on the site and the local fire department can be alerted for an emergency.

(b) The alarm code and reporting instructions shall be conspicuously posted at phones and at employee entrances.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 10-9-86; effective thirtieth day thereafter (Register 86, No. 43).

### § 1925. Fire Cutoffs.

(a) Fire walls and exit stairways, required for the completed buildings, shall be given construction priority. Fire doors, with automatic closing devices, shall be hung on openings as soon as practicable.

(b) Fire cutoffs shall be retained in buildings undergoing alterations until operations necessitate their removal.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10-9-86; effective thirtieth day thereafter (Register 86, No. 43).

### § 1930. Flammable and Combustible Liquids.

(a) General.

(1) Only approved containers and portable tanks shall be used. Metal containers and portable tanks meeting the requirements of and containing products authorized by Chapter I, Title 49, of the Code of Federal Regulations (DOT Regulations), shall be deemed to be acceptable.

(2) Containers and portable tanks for flammable and combustible liquids shall conform to Table A.

Table A
Maximum Allowable Size of
Containers and Portable Tanks

| *Container Type* | *Flammable Liquids* *Class IA* | *Class IB* | *Class IC* | *Combustible Liquids* *Class II* | *Class III* |
|---|---|---|---|---|---|
| Glass | 1 pt. | 1 qt. | 1 gal. | 1 gal. | 5 gal. |
| Metal (Other than DOT Drums) or approved plastic | 1 gal. | 5 gal. | 5 gal. | 5 gal. | 5 gal. |
| Safety cans | 2 gal. | 5 gal. | 5 gal. | 5 gal. | 5 gal. |
| Metal Drum (DOT Spec) | 60 gal. | 60 gal. | 60 gal. | 60 gal. | 60 gal. |
| Approved Portable Tanks | 660 gal. | 660 gal. | 660 gal. | 660 gal. | 660 gal. |
| Polyethylene DOT Spec 34 or as authorized by DOT Exemption | 1 gal. | 5 gal. | 5 gal. | 60 gal. | 60 gal. |

SI Units: 1 pt. = 0.43 L; 1 qt. = 0.95 L; 1 gal. = 3.785 L

(3) Portable tanks in excess of 660 gallons shall have emergency venting and other devices as required by Chapters II and III of the Flammable and Combustible Liquids Code (NFPA 30-1984).

(4) Flammable or combustible liquids shall not be stored so as to limit use of exits, stairways or areas normally used for the safe egress of people.

(A) Storage in excess of 25 gallons of flammable liquids or 60 gallons of Class III liquids shall be within cabinets constructed to the requirements of NFPA 30.

(B) Not more than 25 gallons of flammable liquids shall be stored in safety cans outside of a flammable liquids storage room or storage cabinet.

(5) Not more than 120 gallons of Class I, Class II, or Class IIIA liquids may be stored in a storage cabinet. Of this total, not more than 60 gallons may be of Class I and Class II liquid. Not more than three such cabinets may be located in a single floor area, except that in an industrial occupancy additional cabinets may be located in the same floor area if the additional cabinet, or group of not more than three cabinets, is separated from any other cabinets or group of cabinets by at least 100 feet.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10-9-86; effective thirtieth day thereafter (Register 86, No. 43).

### § 1931. Inside Storage.

(a) Inside storage rooms shall be constructed in accordance with NFPA 30-1984.

(b) Materials which will react with water shall not be stored in the same room with flammable or combustible liquids.

(c) Storage in inside storage rooms shall comply with the following:

| *Automatic Fire Protection * Provided* | *Fire Resistance* | *Maximum Floor Area* | *Total Allowable Quantities Gals./sq. ft./floor area* |
|---|---|---|---|
| yes | 2-hour | 500 sq. ft. | 10 |
| no | 2-hour | 500 sq. ft. | 4 ** |
| yes | 1-hour | 150 sq. ft. | 5 |
| no | 1-hour | 150 sq. ft. | 2 |

* Fire protection system shall be sprinkler, water spray, carbon dioxide, dry chemical, halon or other approved system.

** Total allowable quantities of Class IA and IB Liquids shall not exceed that permitted in Table 4-4.2.7 and the provisions of 4-4.2.10 of NFPA 30-1984.

(d) Electrical wiring and equipment located in inside storage rooms used for Class I liquids shall be approved for Class I, Division 2 Locations in accordance with the Low Voltage Electrical Safety Orders.

(e) Provisions shall be made for ventilation of inside storage rooms in accordance with General Industry Safety Orders, Section 5143.

(f) In every inside storage room there shall be maintained one clear aisle at least three feet wide. Containers over 30 gallons capacity storing Class I or Class II liquids shall not be stacked one upon the other. Dispensing shall be by approved pump or self-closing faucet only.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10-9-86; effective thirtieth day thereafter (Register 86, No. 43).
2. Editorial correction of subsection (e) (Register 95, No. 21).

### § 1932. Outside Storage.

(a) Storage outside buildings shall be in accordance with Table B.

Table B. Outdoor Liquid Storage in Containers and Portable Tanks

| Class | 1 Container Storage Max. per Pile | | 2 Portable Tank Storage Max. per Pile | | 3 Distance Between Piles or Racks (ft) | 4 Distance to Property Line That Can Be Built Upon (ft) (2) (3) | 5 Distance to Street, Alley, or a Public Way (ft) (3) |
|---|---|---|---|---|---|---|---|
| | Gallons (1) (4) | Height (ft) | Gallons (1) (4) | Height (ft) | | | |
| IA | 1,100 | 10 | 2,200 | 7 | 5 | 50 | 10 |
| IB | 2,200 | 12 | 4,400 | 14 | 5 | 50 | 10 |
| IC | 4,400 | 12 | 8,800 | 14 | 5 | 50 | 10 |
| II | 8,800 | 12 | 17,600 | 14 | 5 | 25 | 5 |
| III | 22,000 | 18 | 44,000 | 14 | 5 | 10 | 5 |

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage in that pile shall be the smallest of the two or more separate gallonages.

NOTE 2: Within 200 feet of each container, there shall be a 12–foot wide access way to permit approach of fire control apparatus.

NOTE 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column four shall be doubled.

NOTE 4: When total quantity stored does not exceed 50% of maximum per pile, the distances in columns four and five may be reduced 50%, but not less than three feet.

(b) The storage area shall be graded in a manner to divert possible spills away from buildings or other exposures or shall be surrounded by a curb at least 12 inches high. When curbs are used, provisions shall be made for draining of accumulations of ground or rain water or spills of flammable or combustible liquids. Drains shall terminate at a safe location and shall be accessible to operation under fire conditions.

(c) All available precautions shall be taken to protect the storage area against tampering or trespassers where necessary. The area shall be kept free of vegetation and combustible material.

(d) Each portable tank shall be provided with one or more devices installed in the top with sufficient emergency venting capacity to limit internal pressure under fire exposure conditions to 10 psig, or 30 percent of the bursting pressure of the tank, whichever is greater. The total venting capacity shall be not less than that specified in Section 1932(e) below. At least one pressure–actuated vent having a minimum capacity of 6,000 cubic feet of free air per hour (14.7 psig and 60°F.) shall be used. It shall be set to open at not less than 5 psig. If fusible vents are used, they shall be actuated by elements that operate at a temperature not exceeding 300° F.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10–9–86; effective thirtieth day thereafter (Register 86, No. 43).

## § 1933. Fire Control.

(a) Suitable fire control devices, such as small hose or portable fire extinguishers, shall be available at locations where flammable or combustible liquids are stored.

(b) At least one portable fire extinguisher having a rating of not less than 20–B units shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage.

(c) At least one portable fire extinguisher having a rating of not less than 20–B units shall be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.

(d) When sprinklers are provided, they shall be installed in an approved manner. The Standard for the Installation of Sprinkler Systems, NFPA 13–1984, provides information on the installation of sprinkler systems.

(e) At least one portable fire extinguisher having a rating of not less than 20–B:C units shall be provided on all tank trucks or other vehicles used for transporting and/or dispensing flammable or combustible liquids.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10–9–86; effective thirtieth day thereafter (Register 86, No. 43).

## § 1934. Dispensing Liquids.

(a) Areas in which flammable or combustible liquids are transferred at one time, in quantities greater than 5 gallons from one tank or container to another tank or container, shall be separated from other operations by 25–feet distance or by construction having a fire resistance of at least 1 hour. Drainage or other means shall be provided to control spills. Adequate natural or mechanical ventilation shall be provided to maintain the concentration of flammable vapor at or below 10 percent of the lower flammable limit.

(b) When flammable liquids are transferred from one container to another, the fill spout, nozzle or fill pipe shall be kept continuously in contact with the edge of the fill opening to prevent the discharge of static sparks. Bonding or grounding of tanks, tank vehicles, tank cars, etc., shall be in accordance with NFPA 77–1983.

(c) Flammable liquids shall be drawn from or transferred into vessels, containers or portable tanks within a building only through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container or portable tanks by gravity through an approved self–closing valve. Transferring any liquids by means of air pressure on the container or portable tanks shall be prohibited.

(d) The dispensing unit and its piping shall be protected against collision damage.

(e) Dispensing devices and nozzles for flammable liquids shall be of an approved type.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10–9–86; effective thirtieth day thereafter (Register 86, No. 43).

## § 1935. Use of Flammable Liquids.

(a) Flammable liquids shall be kept in closed containers when not actually in use.

(b) Leakage or spillage of flammable or combustible liquids shall be disposed of promptly and safely.

(c) Flammable liquids may be used only where there are no open flames or other sources of ignition within the possible path of vapor travel.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 10–9–86; effective thirtieth day thereafter (Register 86, No. 43).

### § 1936. Service and Refueling Areas.

(a) Only approved containers and portable tanks shall be used. Metal containers and portable tanks meeting the requirements of and containing products authorized by Chapter I, Title 49, of the Code of Federal Regulations (DOT Regulations), shall be deemed to be acceptable.

(b) Dispensing devices for Class I liquids shall be of approved type. The dispensing nozzle shall be of an approved automatic-closing type without a latch-open device.

(c) Underground tanks taken out of service shall be safeguarded or disposed of by any one of the three following means:

(1) Placed in a "temporarily out of service" condition. Tanks should be rendered "temporarily out of service" only when it is planned that they will be returned to active service within a reasonable period or pending removal or abandonment within 90 days.

(2) Abandoned in place with proper safeguarding to render them inactive to explosion and/or collapse.

(3) Removed.

(d) For emergency power cutoff, a clearly identified and easily accessible switch(es) or circuit breaker(s) shall be provided at a location remote from dispensing devices, including remote pumping systems, to shut off the power to all dispensing devices in the event of an emergency.

(e) Heating equipment using gas or oil fuel may be installed in the lubrication or service room where there is no dispensing or transferring of Class I liquids provided the bottom of the combustion chamber is at least 18 inches above the floor and the heating equipment is protected from physical damage.

(f) Heating equipment approved for use in garages may be installed in the lubrication or service room where Class I liquids are dispensed provided the equipment is installed at least 8 feet above the floor.

(g) Smoking or open flames shall not be permitted in the areas used for fueling, servicing fuel systems for internal combustion engines, receiving or dispensing of flammable liquids. Conspicuous and legible signs prohibiting smoking shall be posted within sight of the person being served. The motors of all equipment being fueled shall be shut off during the fueling operation except for emergency generators, pumps, etc., where continuing operation is essential.

(h) Each service or fueling area shall be provided with at least one fire extinguisher having a rating of not less than 20-B:C located so that an extinguisher will be within 75 feet of each pump, dispenser, underground fill pipe opening, and lubrication or service area.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of subsection (a) filed 10-9-86; effective thirtieth day thereafter (Register 86, No. 43).

### § 1937. Repairs and Alterations to LP-Gas Containers.

(a) No repairs or alterations involving flame, arc, or other method of welding, shall be made on any tank, cylinder, or system unless such tank, cylinder, or system shall first have been certified as free of combustible gases by competent personnel.

(b) No repair or alteration affecting the safety of the tank or cylinder shall be made to any LP-Gas tank or cylinder until the contemplated repair or alteration has been approved by a qualified inspector. Nothing in this order shall prohibit the exchange or interchange of valves, fittings, and accessories intended for the same purpose.

(c) All repairs affecting the safety of LP-Gas tanks shall be reported to the Division within twenty-one days (21 days) by the qualified inspector authorizing such repairs.

(d) Any welding necessary when making repairs or alterations to tanks shall be done by a welder qualified in accordance with Section IX of the ASME Code in the position or positions used in making the repair. Repairs to DOT cylinders shall be made under DOT regulations and control.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 10-9-86; effective thirtieth day thereafter (Register 86, No. 43).

### § 1938. Construction Site, General.

(a) Internal combustion engine powered equipment shall be so located that the exhausts are well away from combustible materials. When the exhausts are piped to outside the building under construction, a clearance of at least 6 inches shall be maintained between such piping and combustible material.

(b) Temporary buildings.

(1) No temporary building shall be erected where it will adversely affect any means of exit.

(2) Temporary buildings, when located within another building or structure, shall be of either noncombustible construction or of combustible construction having a fire resistance of not less than 1 hour.

(3) Temporary buildings, located other than inside another building and not used for the storage, handling, or use of flammable or combustible liquids, flammable gases, explosives, or blasting agents, or similar hazardous occupancies, shall be located at a distance of not less than 10 feet from another building or structure. Groups of temporary buildings, not exceeding 2,000 square feet in aggregate, shall, for the purposes of this section, be considered a single temporary building.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New section filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

## Appendix A

### Labor Code Excerpts; Accident Prevention Program Ideas; Etc.

PLATE A-1

LABOR CODE SECTIONS DEALING WITH DIVISION OF OCCUPATIONAL SAFETY AND HEALTH IN GENERAL AS WELL AS CONSTRUCTION

Division 5. Safety in Employment

Part 1. Occupational Safety and Health


| | |
|---|---|
| Chapter 1. Jurisdiction and Duties | 6300-6331 |
| Chapter 2. Education and Research | 6350-6355 |
| Chapter 2.5 Hazardous Substances Information and Training | |
| Article | |
| 1. General Provisions | 6360-6363 |
| 2. Definitions | 6365-6374 |
| 3. Hazardous Substances | 6380-6386 |
| 4. Duties | 6390-6399.2 |
| 5. Liability and Remedies | 6399.5-6399.7 |
| Chapter 3. Responsibilities and Duties of Employers and Employees | 6400-6413.5 |
| Chapter 4. Penalties | 6423-6436 |
| Chapter 5. Temporary Variances | 6450-6457 |
| Chapter 6. Permit Requirements | 6500-6511 |
| Chapter 7. Appeal Proceedings | 6600-6633 |
| Chapter 8. Enforcement of Civil Penalties | 6650-6652 |
| Chapter 9. Miscellaneous Safety Provisions | 6700-6715 |
| Part 3. Safety on Buildings | |
| Chapter 1. Buildings Under Construction or Repair | |
| Article | |
| 1. Floors and Walls | 7100-7150 |
| 2. Scaffolding | 7150-7158 |
| 3. Construction Elevators | 7200-7205 |
| 4. Structural Steel Framed Buildings | 7250-7267 |
| Chapter 3. Safety Devices Upon Buildings to Safeguard Window Cleaners | 7325-7332 |
| Chapter 5. Cranes | |
| Article | |
| 1. Permits for Tower Cranes | 7370-7374 |
| 2. Certification | 7375-7384 |
| Part 10. Use of Carcinogens | |
| Chapter 1. General Provisions and Definitions | 9000-9009 |
| Chapter 2. Exemptions | 9015 |
| Chapter 3. Standards and Administration | 9020-9022 |
| Chapter 4. Reporting | 9030-9032 |
| Chapter 5. Medical Examination | 9040 |
| Chapter 6. Inspections | 9050-9052 |
| Chapter 7. Penalties | 9060-9061 |

PLATE A–2
SUGGESTED SAFETY PROGRAM FOR CONTRACTORS
GENERAL

1. Demonstrate your interest in safety by establishing a firm and positive accident prevention policy that includes the supplying of tangible items like hard hats, good ladders, first aid materials, and safety devices on equipment.

2. Provide that capable, responsible supervisors make regular inspections of all excavations, forms, scaffolds, stairs, ladders, structures, machinery, and equipment at frequent intervals; take immediate corrective measures to eliminate hazards directly under control of the employer, or report violations of Safety Orders and safe practices to the responsible employer.

3. Make certain that the foremen assume their share of the responsibility for accidents, and require a written report from them on each. Require that each report suggests a feasible means of avoiding future accidents of a similar nature.

4. Monthly, or more frequent, meetings of all foremen should be held under direction of the superintendent for a discussion of safety problems and accidents that have occurred. Have something specific ready for discussion, such as safety regulations, or any changes in equipment and methods that are to be adopted for safety reasons.

5. Display safety posters and warning signs. A sign indicating how many consecutive accident–free days have passed is often worthwhile.

6. Consider the advisability of posting a list of all foremen who have kept their crews accident free for a certain period of time.

7. Consider the advisability of establishing various forms of safety competition, including suitable rewards or recognition to individuals and crews with good records.

8. Require foremen to give individual safety instructions and orders, as needed, to new workers and those found to be working unsafely.

9. Consider the advisability of having the foremen call short "toolbox" or "tail–gate" safety meetings with their crews about once a week on the job, to emphasize some particular safety problem that needs special attention.

10. Keep track of your safety record and keep everyone posted as to progress. A graph or chart, indicating gains or losses, is good for this purpose.

11. Encourage safety suggestions from all workers and, if the suggestion cannot be followed promptly, explain why to the worker.

12. Consider the advisability of giving each worker a copy of certain important safety rules that they are expected to follow.

13. Arrange for frequent and regular field safety inspections.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 4–3–85, effective thirtieth day thereafter (Register 85, No. 14).
2. Change without regulatory effect deleting appendices' introduction and index and amending Plate A–1 filed 6–14–93 pursuant to title 1, section 100, California Code of Regulations (Register 93, No. 25).

PLATE A–2–a
ADVANCE PLANNING SUGGESTED FOR CONSTRUCTION WORK

Each operation of a construction job should be planned in advance. Such planning is needed at all stages of the project. It should start with the estimators, prior to preparations of bids, and continue throughout the job, with superintendents and foremen doing their share.

Construction planning will eliminate some accidents automatically, by creating a well–organized job. But expert planning gives special attention to safety, and thus is highly effective in making the operation safe and efficient.

1. Safe Access and Movement
(a) Workers
(1) Adequate work areas.
(2) Adequate walkways and runways.
(3) Adequate ladders, stairways, or elevators.
(4) Work areas and passageways clear of rubbish, debris, nails, etc.
(5) Protection for floor and roof openings.
(6) Adequate illumination.
(b) Vehicles
(1) Good roads.
(A) Adequate turn space.
(B) Adequate parking area.
(C) Free from excessive mud and dump areas.
(2) Separate materials storage areas and dump areas.
(3) Adequate signs, signals, etc., to route vehicles on job.
(4) Maintenance and repair of vehicles.
(c) Location of Utilities and Service
(1) Locate saw, tool sheds, office, etc., in a safe, convenient place.
(2) Consider location of high–voltage lines.
(A) Arrange to move, de–energize, or erect barrier, if contact is a possibility.
(3) Locate sanitary facilities, drinking water, power, etc., for safety and convenience.

2. Schedule Work for Safety
(a) Have safety materials on job when needed, i.e., personal protective equipment, shoring, first aid, etc.
(b) Plan work so that too many trades are not in a small area at the same time.

3. Work Procedures
(a) Materials Handling
(1) Methods of elevating and handling materials.
(A) Adequate space.
(B) Proper auxiliary equipment, i.e., cranes, hoists, elevators, trucks, etc.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 4–3–85; effective thirtieth day thereafter (Register 85, No. 14).

PLATE A–2–b

(2) Methods of loading and unloading.
(A) Adequate space.
(B) Proper auxiliary equipment, i.e., power shovels, cranes, rigging, fork lifts, etc.
(b) Tools and Equipment
(1) Repair, maintenance, and care.
(2) Inspection.
(3) Adequate supplies of the right tools for each part of job.
(c) Workers and Foremen
(1) Proper job placement.
(2) Adequate training and supervision.
(3) Adequate manpower.
(4) Plans for maintaining interest in safety.
(A) Safety bulletins, record charts, and posters.
(B) Recognition for groups or individuals with safety records.
(C) Investigation and reporting on all accidents.
(D) Knowledge of safety orders.
(E) Safety meetings.




*A RULE BREAKER IS AN ACCIDENT MAKER*

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 4–3–85; effective thirtieth day thereafter (Register 85, No. 14).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE A–3
CODE OF SAFE PRACTICES

(This is a suggested code. It is general in nature and intended as a basis for preparation by the contractor of a code that fits his/her operations more exactly.)

GENERAL

1. All persons shall follow these safe practices rules, render every possible aid to safe operations, and report all unsafe conditions or practices to the foreman or superintendent.

2. Foremen shall insist on employees observing and obeying every rule, regulation, and order as is necessary to the safe conduct of the work, and shall take such action as is necessary to obtain observance.

3. All employees shall be given frequent accident prevention instructions. Instructions shall be given at least every 10 working days. When applicable, the accident prevention instructions shall also include specific instruction on the safe use, care and maintenance of fall protection equipment (i.e. fall arrest systems, positioning device systems, safety nets, etc.) used at the jobsite.

4. Anyone known to be under the influence of drugs or intoxicating substances which impair the employee's ability to safely perform the assigned duties shall not be allowed on the job while in that condition.

5. Horseplay, scuffling, and other acts which tend to have an adverse influence on the safety or well–being of the employees shall be prohibited.

6. Work shall be well planned and supervised to prevent injuries in the handling of materials and in working together with equipment.

7. No one shall knowingly be permitted or required to work while the employee's ability or alertness is so impaired by fatigue, illness, or other causes that it might unnecessarily expose the employee or others to injury.

8. Employees shall not enter manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter.

9. Employees shall be instructed to ensure that all guards and other protective devices are in proper places and adjusted, and shall report deficiencies promptly to the foreman or superintendent.

10. Crowding or pushing when boarding or leaving any vehicle or other conveyance shall be prohibited.

11. Workers shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received instructions from their foreman.

12. All injuries shall be reported promptly to the foreman or superintendent so that arrangements can be made for medical or first aid treatment.

13. When lifting heavy objects, the large muscles of the leg instead of the smaller muscles of the back shall be used.

14. Inappropriate footwear or shoes with thin or badly worn soles shall not be worn.

15. Materials, tools, or other objects shall not be thrown from buildings or structures until proper precautions are taken to protect others from the falling objects.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 4–3–85; effective thirtieth day thereafter (Register 85, No. 14).
2. Amendment of first paragraph and provision number 3. filed 7–30–97; operative 8–29–97 (Register 97, No. 31).

PLATE A–3–a

16. Employees shall cleanse thoroughly after handling hazardous substances, and follow special instructions from authorized sources.

17. Hod carriers should avoid the use of extension ladders when carrying loads. Such ladders may provide adequate strength, but the rung position and rope arrangement make such climbing difficult and hazardous for this trade.

18. Work shall be so arranged that employees are able to face ladder and use both hands while climbing.

19. Gasoline shall not be used for cleaning purposes.

20. No burning, welding, or other source of ignition shall be applied to any enclosed tank or vessel, even if there are some openings, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the foreman or superintendent.

21. Any damage to scaffolds, falsework, or other supporting structures shall be immediately reported to the foreman and repaired before use.

USE OF TOOLS AND EQUIPMENT

22. All tools and equipment shall be maintained in good condition.

23. Damaged tools or equipment shall be removed from service and tagged "DEFECTIVE."

24. Pipe or Stillson wrenches shall not be used as a substitute for other wrenches.

25. Only appropriate tools shall be used for the job.

26. Wrenches shall not be altered by the addition of handle–extensions or "cheaters."

27. Files shall be equipped with handles and not used to punch or pry.

28. A screwdriver shall not be used as a chisel.

29. Wheelbarrows shall not be pushed with handles in an upright position.

30. Portable electric tools shall not be lifted or lowered by means of the power cord. Ropes shall be used.

31. Electric cords shall not be exposed to damage from vehicles.

32. In locations where the use of a portable power tool is difficult, the tool shall be supported by means of a rope or similar support of adequate strength.

MACHINERY AND VEHICLES

33. Only authorized persons shall operate machinery or equipment.

34. Loose or frayed clothing, or long hair, dangling ties, finger rings, etc., shall not be worn around moving machinery or other sources of entanglement.

35. Machinery shall not be serviced, repaired or adjusted while in operation, nor shall oiling of moving parts be attempted, except on equipment that is designed or fitted with safeguards to protect the person performing the work.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 4–3–85; effective thirtieth day thereafter (Register 85, No. 14).

PLATE A–3–b

36. Where appropriate, lock–out procedures shall be used.

37. Employees shall not work under vehicles supported by jacks or chain hoists, without protective blocking that will prevent injury if jacks or hoists should fail.

38. Air hoses shall not be disconnected at compressors until hose line has been bled.

39. All excavations shall be visually inspected before backfilling, to ensure that it is safe to backfill.

40. Excavating equipment shall not be operated near tops of cuts, banks, and cliffs if employees are working below.

41. Tractors, bulldozers, scrapers and carryalls shall not operate where there is possibility of overturning in dangerous areas like edges of deep fills, cut banks, and steep slopes.

42. When loading where there is a probability of dangerous slides or movement of material, the wheels or treads of loading equipment, other than that riding on rails, should be turned in the direction which will facilitate escape in case of danger, except in a situation where this position of the wheels or treads would cause a greater operational hazard.

BLASTING OPERATIONS

1. Cases that have contained explosives shall be destroyed by burning out–of–doors. Do not burn in a stove or furnace.

2. Shoes with nails or metal plates shall not be worn in magazines or near explosives.

3. Blasting caps shall only be carried in approved containers.

4. The least amount of proper strength explosive that will do the job effectively shall be used.

5. Detonators and primers shall be separated from the explosives until it is necessary to bring them together in preparing for the blast.

6. Holes loaded during a shift should be fired during that shift.

7. The operations of loading and firing should be carried out with as few workers as possible.

8. Drill holes shall be blown out and made ready before explosives are brought to the site.

9. In tamping explosives, steady, even pressure should be used.

10. For electric blasting, the following shall apply:

(a) Tight electrical connections.

(b) No short circuits or breaks in the wires.

(c) Enough current to fire all shots.

(d) A strong, properly–applied force when using a blasting machine operated by physical effort.

(e) Care not to damage the insulation of wires when tamping charges.

11. If misfires occur, the licensed blaster shall be contacted.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 4–3–85; effective thirtieth day thereafter (Register 85, No. 14).

2. Amendment filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE A–3–c
ROOFING OPERATIONS

1. Knotted hand lines should not be used.

2. Roofers tending kettles, or carrying buckets of hot tar, shall wear gloves that fit snugly at the wrists, and long sleeved shirts fastened at the wrists.

3. At no time should a roofer, while handling or exposed to injury from hot tar, work without a shirt or appropriate footwear.

4. Appropriate portable fire extinguishers shall be kept at or near the kettle, attached, if practicable, to the tongue of the kettle, away from the danger zone.

5. Kettle covers should be equipped with a handle that projects at least fourteen inches (14") away from the surface of the cover or lid.

6. Kettle covers shall be closed and latched when in transit and the kettle should be slop–proof when cover is closed.

7. When parked, means shall be provided to prevent inadvertent movement of the kettle.

8. Ladders should be used with great caution, and roof gutters should not be depended upon for support.

9. Workers handling buckets of hot tar should not carry anything that will interfere with the safety of this operation.

10. The gallows frame shall be securely anchored before hoisting materials.

11. Only muscular power shall be used to hoist materials by means of a gallows frame. A winch or power hoist shall not be used.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of Item No. 58 and renumbering of Item Nos. 59–61 filed 6–6–80; effective thirtieth day thereafter (Register 80, No. 23).

2. Amendment filed 4–3–85; effective thirtieth day thereafter (Register 85, No. 14).

## Appendix B

### Handy Construction Data; Facts; and Information Plate B–1
### Handy Things to Know

1. TO FIND—

(a) the circumference of a circle, multiply the diameter by 3.1416 (approx. 3 1/7).

(b) the diameter of a circle, multiply the circumference by .31831.

(c) the area of a circle, multiply the square of the diameter by .7854.

(d) the area of a triangle, multiply the base by 1/2 the perpendicular height.

(e) the volume of a sphere, multiply cube of the diameter by .5236.

A gallon of water weighs 8 1/2 pounds.

A gallon of water contains 231 cubic inches.

A cubic foot of water contains 7 1/2 gals., 1728 cubic inches and weighs 62 1/2 lbs.

In board measure all boards are assumed to be 1 inch thick. Area of a lineal foot multiplied by length in feet will give the surface contents in square feet.

PLATE B–1–a
SANITATION OF PERSONAL SAFETY DEVICES
(except respiratory protective equipment)

Thorough scrubbing with soap and hot water is ordinarily adequate for cleaning purposes. When additional cleaning appears necessary, one of the following treatments should be used, in addition to the soap and water scrubbing:

(1) Immerse in boiling water for five (5) minutes.

(2) The method recommended by the manufacturer for cleaning and sterilizing.

After following any of these procedures, the equipment should be thoroughly rinsed with water and hung up to dry.

Such items that have been in contact with the skin of the wearer must be replaced if they cannot be cleaned as described.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of Plate B–1–a filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).

2. Amendment of Plate B–1–a repealing paragraphs (1)–(2) and renumbering paragraphs filed 7–28–2006; operative 8–27–2006 (Register 2006, No. 30).

PLATE B–2
MEASURES

1 SQUARE MILE ..... = 640 acres
= 6400 square chains

1 ACRE ..... = 10 square chains
= 4840 square yards
= 43,560 square feet
= a square, each side of which is 208.7 feet
= 16 square rods

1 SQUARE CHAIN ..... = 484 square yards
= 4356 square feet
= 30.25 square yards

1 SQUARE ROD ..... = 272.25 square feet
= 625 square links

1 SQUARE YARD ..... = 9 square feet

1 SQUARE FOOT ..... = 144 square inches
= 0.1337 cu. feet

1 U.S. GALLON ..... = 231 cu. inches
= 4 quarts
= 8 pints

1 CUBIC FOOT ..... = 7.48 U.S. Gallons

PLATE B–3
WEIGHTS OF MATERIALS

| *Material* | *Approximate Weight Per Cubic Foot—Lbs.* |
|---|---|
| Aluminum | 166 |
| Ashes | 43 |
| Asphalt | 81 |
| Brass | 524 |
| Brick (common) | 120 (about 3 tons per 1000) |
| Brick (fire) | 145 |
| Bronze | 534 |
| Concrete 150 | (4050 lbs. per cu. yd.) |
| Copper | 537 |
| Crushed Rock | 95 (2565 lbs. per cu. yd.) |
| Dry earth, loose | 76 (2052 lbs. per cu. yd.) |
| Granite | 179 |
| Iron, casting | 450 |
| Lead | 708 |
| Lumber, Fir | 32 (2666 lbs. 1000 ft.) |
| Lumber, Oak | 62 (5166 lbs. 1000 ft.) |
| Marble | 168 |
| Mortar | 100 |
| Port. Cement | 94 (376 lbs. per barrel) |
| River Sand | 120 (3240 lbs. cu. yd.) |
| Steel | 490 |
| Tar | 63 |
| Tile | 115 |
| Water | 62.5 |
| Zinc 437 | |

PLATE B–4
WEIGHTS OF METALS PER SQUARE FOOT

| *Thickness Inches* | *Wrought Iron* | *Cast Iron* | *Steel* | *Copper* | *Tin* | *Zinc* | *Brass* | *Lead* |
|---|---|---|---|---|---|---|---|---|
| | *Weights, Pounds per Square Foot* | | | | | | | |
| 1/16 | 2.50 | 2.34 | 2.55 | 2.89 | 2.41 | 2.28 | 2.63 | 3.7 |
| 1/8 | 5.00 | 4.69 | 5.10 | 5.79 | 4.81 | 4.55 | 5.26 | 7.4 |
| 3/16 | 7.50 | 7.03 | 7.65 | 8.68 | 7.22 | 6.83 | 7.89 | 11.1 |
| 1/4 | 10.0 | 9.38 | 10.2 | 11.6 | 9.63 | 9.10 | 10.5 | 14.8 |
| 5/16 | 12.50 | 11.7 | 12.8 | 14.5 | 12.0 | 11.4 | 13.2 | 18.5 |
| 3/8 | 15.00 | 14.1 | 15.3 | 17.4 | 14.4 | 13.7 | 15.8 | 22.2 |
| 7/16 | 17.50 | 16.4 | 17.9 | 20.3 | 16.8 | 15.9 | 18.4 | 25.9 |
| 1/2 2 | 0.00 | 18.7 | 20.4 | 23.2 | 19.3 | 18.2 | 21.1 | 29.7 |
| 9/16 | 22.50 | 21.1 | 23.0 | 26.0 | 21.7 | 20.5 | 23.7 | 23.4 |
| 5/8 | 25.00 | 23.5 | 25.5 | 28.9 | 24.1 | 22.8 | 26.3 | 37.1 |
| 11/16 | 27.50 | 25.8 | 28.1 | 31.8 | 26.5 | 25.0 | 28.9 | 40.8 |
| 3/4 | 30.00 | 28.1 | 30.6 | 34.7 | 28.9 | 27.3 | 31.6 | 44.4 |
| 13/16 | 32.50 | 30.5 | 33.2 | 37.6 | 31.3 | 29.6 | 34.2 | 48.2 |
| 7/8 | 35.00 | 32.8 | 35.7 | 40.5 | 33.7 | 31.9 | 36.8 | 51.9 |
| 15/16 | 37.50 | 35.2 | 38.3 | 43.4 | 36.1 | 34.1 | 39.5 | 55.6 |
| 1 | 40.00 | 37.5 | 40.8 | 46.3 | 38.5 | 36.4 | 42.1 | 59.3 |

For rates in square inch, divide by 144.

PLATE B–5
WIND FORCE

FORCE OF WIND IN POUNDS PER SQUARE FOOT

| *Miles per Hour* | *Force per Square Foot—in Lbs.* | *Miles per Hour* | *Force per Square Foot—in Lbs.* |
|---|---|---|---|
| 1 | 0.005 | 20 | 1.969 |
| 2 | 0.020 | 25 | 3.075 |
| 3 | 0.044 | 30 | 4.429 |
| 4 | 0.079 | 35 | 6.027 |
| 5 | 0.123 | 40 | 7.873 |
| 6 | 0.177 | 45 | 9.963 |
| 7 | 0.241 | 50 | 12.30 |
| 8 | 0.315 | 55 | 14.9 |
| 9 | 0.400 | 60 | 17.71 |
| 10 | 0.492 | 65 | 20.85 |
| 12 | 0.708 | 70 | 24.1 |
| 14 | 0.964 | 75 | 27.7 |
| 15 | 1.107 | 80 | 31.49 |
| 16 | 1.25 | 100 | 49.2 |
| 18 | 1.55 | | |

PLATE B–6
RULE OF THUMB

(The following are not suggested as a substitute for accurate tables and reference material, but are sometimes useful in making a final safety check.)

Nails

Safe load lateral resistance in pounds equal eight (8) times the penny-weight.

1–6d nail = 8 x 6, or 48 pound

1–6d nail = 8 x 8, or 64 pounds

1–10d nail = 8 x 10, or 80 pounds

Manila Rope

Safe load in tons equals diameter in inches squared. Not accurate in sizes larger than one inch (1″).

1″ rope = 1 x 1, or 1 ton safe load

1/2″ rope = 1/2 x 1/2, or 1/ Ss4 ton safe load

For sisal rope, decrease safe loads by one–third

Plow–steel Cable

Safe load in tons is eight (8) times the diameter in inches squared.

1/2″ rope = 1/2 x 1/2 = 1/4 x 8 = 2 tons

Open Eye Hook

Safe load in tons is diameter of eye in inches squared.

2″ hook, 2 x 2 = 4 tons

Shackle

Safe load in tons is diameter of pin in one–fourth inches (1/4″) squared and divided by three (3).

1/2″ diameter = 2 quarters

$$\frac{2 \times 2}{3} = 1\ 1/3 \text{ tons or } 2{,}667 \text{ pounds}$$

Chains

Safe load in tons in six (6) times the square of the diameter of chain stock.

1/2″ diameter chain stock

1/2 x 1/2 x 6 = 1 1/2 tons or 3,000 pounds

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).

PLATE B–7
DOUGLAS FIR "STRUCTURAL PLANKS" ESPECIALLY SUITED FOR SCAFFOLDS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).

PLATE B–8
DOUGLAS FIR "SELECTED LUMBER" FOR ORDINARY SCAFFOLD PLANK SERVICE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).

PLATE B–9
SQUARE COLUMNS—UNBRACED
ROUGH LUMBER—NOT SURFACED

Suggested Maximum Loads in Pounds — 1,000 Pounds per Square Inch Douglas Fir

| Length in Feet | SIZE OF COLUMN CROSS SECTION | | | | | | |
|---|---|---|---|---|---|---|---|
| | 4"x4" | 6"x6" | 8"x8" | 10"x10" | 12"x12" | 14"x14" | 16"x16" |
| 5 | 15,300 | 36,000 | 64,000 | 100,000 | 144,000 | 196,000 | 256,000 |
| 6 | 14,600 | 35,400 | 64,000 | 100,000 | 144,000 | 196,000 | 256,000 |
| 7 | 13,500 | 34,900 | 63,400 | 100,000 | 144,000 | 196,000 | 256,000 |
| 8 | 11,800 | 34,100 | 62,900 | 100,000 | 144,000 | 196,000 | 256,000 |
| 9 | 9,600 | 33,000 | 62,300 | 98,900 | 144,000 | 196,000 | 256,000 |
| 10 | 7,800 | 31,500 | 61,500 | 98,400 | 144,000 | 196,000 | 256,000 |
| 11 | 6,400 | 29,400 | 60,200 | 97,600 | 142,400 | 196,000 | 256,000 |
| 12 | 5,400 | 26,700 | 58,700 | 96,700 | 141,700 | 194,200 | 256,000 |
| 14 | use a | 20,100 | 54,300 | 93,800 | 139,600 | 192,800 | 258,700 |
| 16 | larger size | 15,400 | 47,400 | 89,400 | 136,600 | 190,700 | 251,900 |
| 18 | | use a | 38,400 | 83,100 | 132,200 | 187,300 | 249,300 |
| 20 | | larger size | 31,100 | 74,200 | 126,100 | 183,000 | 246,000 |

HISTORY

1. Change without regulatory effect correcting error in Plate B–9 filed 5–28–91 pursuant to section 100, Title 1, California Code of Regulations (Register 91, No. 27).

PLATE B–10
SUGGESTED LOAD LIMITS
FOR TIMBER BEAMS

STRESS GRADE DOUGLAS FIR — 500 POUNDS PER SQUARE INCH

(The loads given are for dressed beams which are slightly smaller than nominal sizes listed).



VERTICAL

Loads are in pounds concentrated at center of span. Reduce listed loads to allow for beam weights.



HORIZONTAL

| Size in Inches | BEAM SPAN IN FEET | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 |
| 4x4 | 990 | 660 | 500 | 390 | 330 | 280 | | | | |
| 4x6 Hor. | 1,530 | 1,000 | 750 | 600 | 500 | 430 | 370 | 330 | | |
| 4x6 Vert. | 2,280 | 1,520 | 1,140 | 910 | 760 | 650 | 570 | 510 | 455 | 380 |
| 6x6 | 3,460 | 2,310 | 1,730 | 1,380 | 1,150 | 990 | 860 | 770 | 690 | 570 |
| 6x8 Hor. | 4,710 | 3,140 | 2,360 | 1,880 | 1,570 | 1,340 | 1,170 | 1,040 | 940 | 780 |
| 6x8 Vert. | 6,400 | 4,290 | 3,220 | 2,580 | 2,150 | 1,840 | 1,610 | 1,430 | 1,290 | 1,070 |
| 8x8 | 8,540 | 5,870 | 4,400 | 3,520 | 2,930 | 2,510 | 2,200 | 1,950 | 1,750 | 1,460 |
| 8x12 Vert. | 12,820 | 12,820 | 10,330 | 8,270 | 6,890 | 5,910 | 5,170 | 4,590 | 4,180 | 3,440 |
| 8x14 Vert. | 14,920 | 14,920 | 14,260 | 11,400 | 9,500 | 8,150 | 7,120 | 6,330 | 5,700 | 4,750 |
| 8x16 Vert. | 17,070 | 17,070 | 17,070 | 15,020 | 12,510 | 10,700 | 9,390 | 8,340 | 7,500 | 6,260 |
| 10x10 | 13,330 | 11,900 | 8,930 | 7,140 | 5,950 | 5,100 | 4,470 | 3,970 | 3,570 | 2,970 |
| 10x12 Vert. | 16,000 | 16,000 | 13,080 | 10,470 | 8,720 | 7,480 | 6,540 | 5,820 | 5,230 | 4,360 |
| 10x14 Vert. | 18,660 | 18,660 | 18,020 | 14,420 | 12,020 | 10,800 | 9,020 | 8,010 | 7,210 | 6,010 |

PLATE B–11
STRENGTH OF U.S. STANDARD
BOLTS FROM 1/4″ TO 2″ DIAMETER

| BOLT | | AREAS | | TENSILE STRENGTH, LBS. | | | SHEARING STRENGTH, LBS. | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FULL BOLT | | BOTTOM OF THREAD | |
| Diameter of Bolts, Inches | Number of Threads per Inch | Full Bolt, Sq. In. | Bottom of Thread, Sq. In. | At 10,000 Lbs. per Sq. In. | At 12,500 Lbs. per Sq. In. | At 17,500 Lbs. per Sq. In. | At 7,500 Lbs. per Sq. In. | At 10,000 Lbs. per Sq. In. | At 7,500 Lbs. per Sq. In. | At 10,000 Lbs. per Sq. In. |
| 1/4 | 20 | 0.049 | 0.027 | 270 | 340 | 470 | 380 | 490 | 200 | 270 |
| 5/16 | 18 | 0.077 | 0.045 | 450 | 570 | 790 | 580 | 770 | 340 | 450 |
| 3/8 | 16 | 0.110 | 0.068 | 680 | 850 | 1.190 | 830 | 1,100 | 510 | 680 |
| 7/16 | 14 | 0.150 | 0.093 | 930 | 1,170 | 1,630 | 1,130 | 1,500 | 700 | 930 |
| 1/2 | 13 | 0.196 | 0.126 | 1,260 | 1,570 | 2,200 | 1,470 | 1,960 | 940 | 1,260 |
| 9/16 | 12 | 0.248 | 0.162 | 1,620 | 2,030 | 2,840 | 1,860 | 2,480 | 1,220 | 1,620 |
| 5/8 | 11 | 0.307 | 0.202 | 2,020 | 2,520 | 3,530 | 2,300 | 3,070 | 1,510 | 2,020 |
| 3/4 | 10 | 0.442 | 0.302 | 3,020 | 3,770 | 5,290 | 3,310 | 4,420 | 2,270 | 3,020 |
| 7/8 | 9 | 0.601 | 0.419 | 4,190 | 5,240 | 7,340 | 4,510 | 6,010 | 3,150 | 4,190 |
| 1 | 8 | 0.785 | 0.551 | 5,510 | 6,890 | 9,640 | 5,890 | 7,850 | 4,130 | 5,510 |
| 1 1/8 | 7 | 0.994 | 0.693 | 6,990 | 8,660 | 12,130 | 7,450 | 9,940 | 5,200 | 6,930 |
| 1 1/4 | 7 | 1.227 | 0.890 | 8,890 | 11,120 | 15,570 | 9,200 | 12,270 | 6,670 | 8,900 |
| 1 3/8 | 6 | 1.435 | 1.054 | 10,540 | 13,180 | 18,450 | 11,140 | 14,850 | 7,910 | 10,540 |
| 1 1/2 | 6 | 1.767 | 1.294 | 12,940 | 16,170 | 22,640 | 13,250 | 17,670 | 9,700 | 12,940 |
| 1 5/8 | 5 1/2 | 2.074 | 1.515 | 15,150 | 18,940 | 26,510 | 15,550 | 20,740 | 11,360 | 15,150 |
| 1 3/4 | 5 | 2.405 | 1.745 | 17,450 | 21,800 | 30,520 | 18,040 | 24,050 | 13,080 | 17,440 |
| 1 7/8 | 5 | 2.761 | 2.049 | 20,490 | 25,610 | 35,860 | 20,710 | 27,610 | 15,370 | 20,490 |
| 2 | 4 1/2 | 3.142 | 2.300 | 23,000 | 28,750 | 40,500 | 23,560 | 31,420 | 17,250 | 23,000 |

HISTORY

1. Editorial correction of Diameter of Bolts second entry (Register 95, No. 21).

PLATE B–12
CALIFORNIA HIGHWAY PATROL
STOPPING DISTANCE CHART

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY

1. Repealer of Plate B–12 filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).

PLATE B–13
MAXIMUM ALLOWABLE CONCENTRATIONS FOR
MINERAL DUSTS

HISTORY

1. Repealer of Appendix Plate B–13 filed 10–18–77; effective thirtieth day thereafter (Register 77, No. 43).

PLATE B–13–a
TABLE 1—MINERAL DUSTS

HISTORY

1. Repealer of Appendix Plate B–13–a filed 10–18–77; effective thirtieth day thereafter (Register 77, No. 43).

PLATE B–14 Table 1

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 12006, Health and Safety Code.

HISTORY

1. Repealer and new Plate B–14 filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
2. Repealer and new Plate B–14 filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
3. Amendment transferring Plate B–14 — Table 1 to section 5352 — Table EX–1 filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

Plate B–14 Table 2

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code; and Section 12006, Health and Safety Code.

HISTORY

1. Repealer filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

PLATE B–14a

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Plate B–14a filed 6–26–97; operative 7–26–97 (Register 97, No. 26). For prior history, see Register 85, No. 30.
2. Amendment transferring Plate B–14a to section 5352 — Table EX–3 filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

PLATE B–14–b

HISTORY

1. Repealer filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).

PLATE B–14–c

HISTORY

1. Repealer filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).

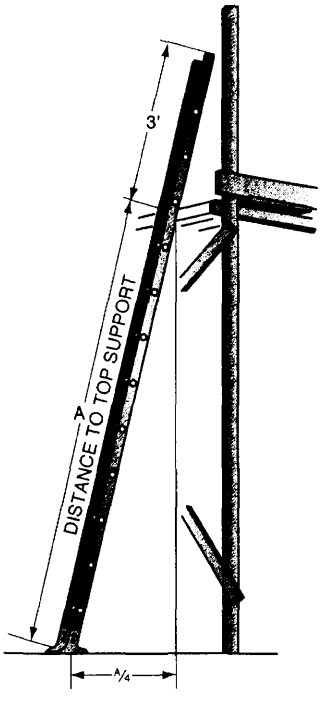
PLATE B–15

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer of Plates B–15–a and B–15–b and new Plate B–15 filed 7–8–81; effective thirtieth day thereafter (Register 81, No. 28).
2. Amendment of NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
3. Repealer and new Plate B–15 filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
4. Amendment trasferring Plate B–15 (tables 1–5) to section 5306 filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

PLATE B–16
LADDERS



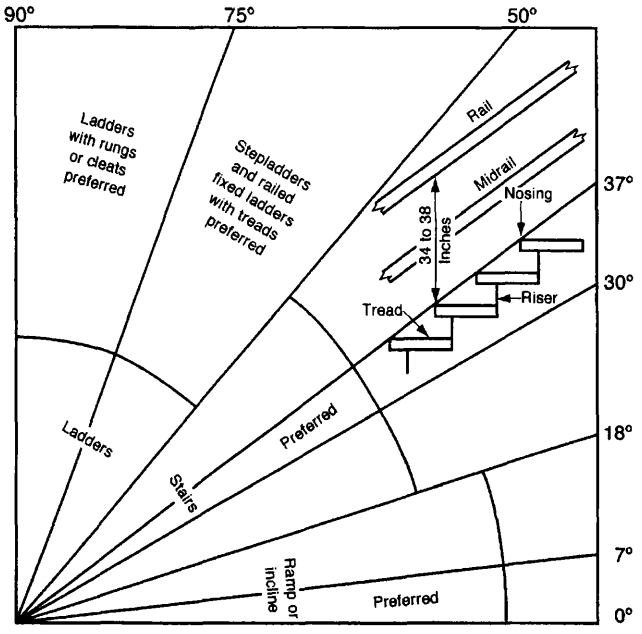

**Safe Procedure In Setting Up a Ladder**

The base should be one–fourth the ladder length from the vertical plane of the top support

HISTORY

1. Amendment filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–17
CRITERIA FOR STAIRS, LADDERS AND RAMPS OR INCLINES




**"DON'T BE THE FALL GUY"**
**(for stairs installed on or after April 3, 1997)**

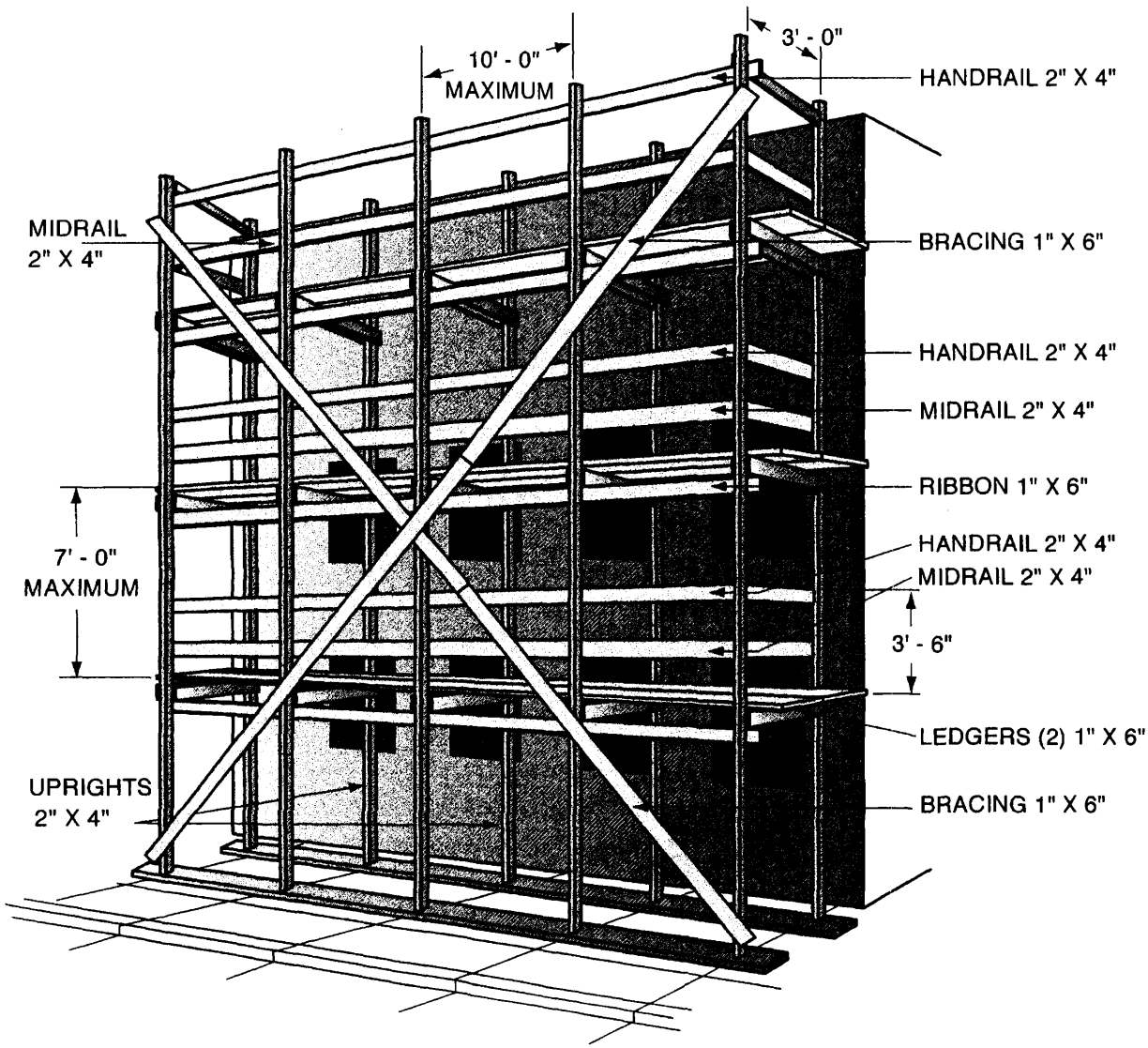
"Don't be the Fall Guy" (for stairs installed on or after April 3, 1997)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Amendment filed 12–4–2007; operative 1–3–2008 (Register 2007, No. 49).
3. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

[PLATE B–18
LIGHT–TRADE POLE SCAFFOLD
For Scaffolds Over 20 Feet High Use 3″ x 4″ Uprights
For carpenters, lathers, shinglers, painters, plasterers, sheet metal workers and other trades not using heavy tools or storing heavy materials on the scaffold.




NOTE: (1) Continuous sills may be required on pavement or other surfaces that might cause slipping. When uprights are placed on the ground, they must rest on sills or foot blocks that are adequate to sustain the load.

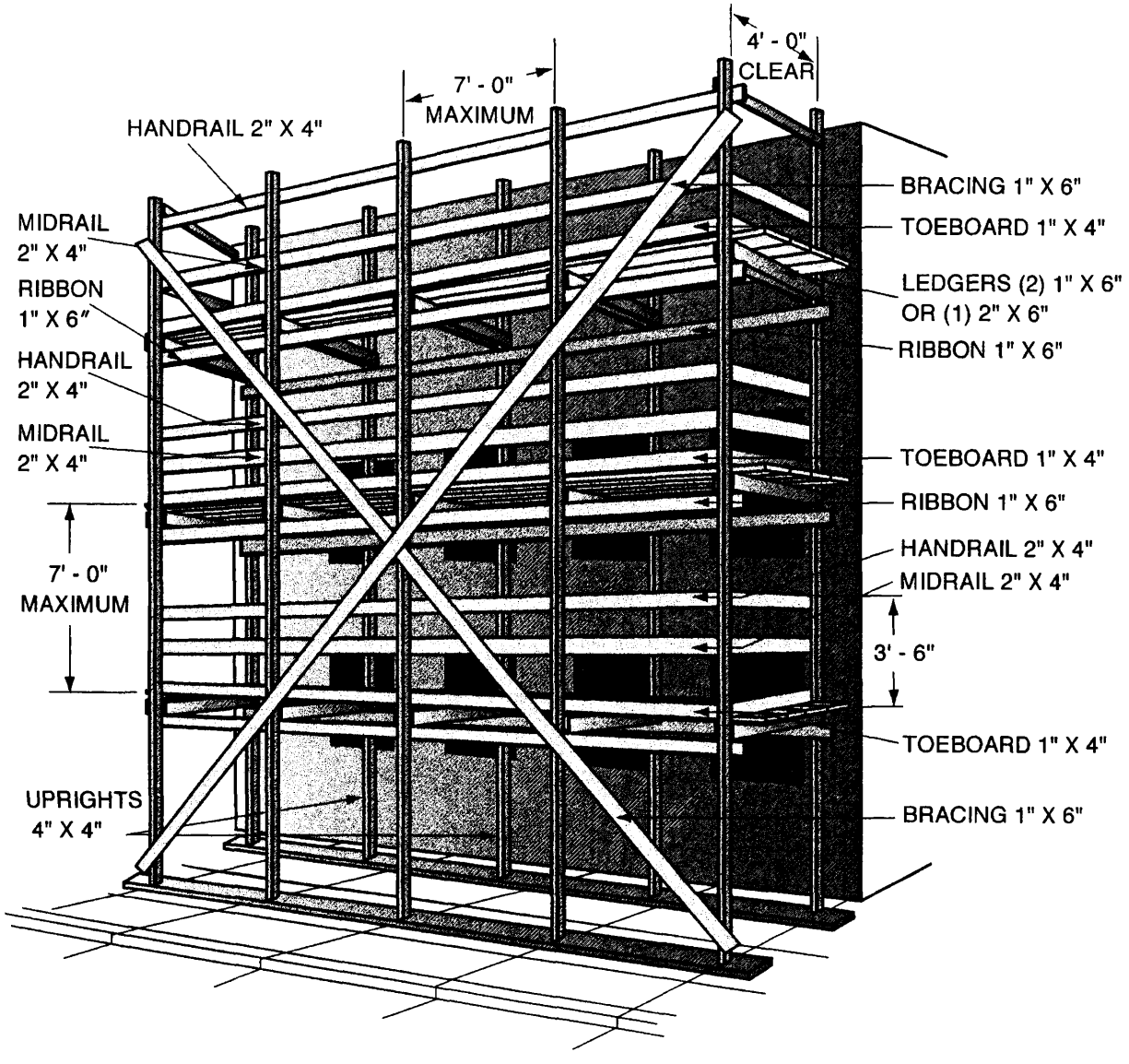
(2) Ladders do not have to be placed as shown, but may be located at any suitable place on the scaffold that gives proper access to the platform or platforms.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate B–18 filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
2. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
3. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–19
HEAVY–TRADE POLE SCAFFOLD
For Scaffolds Over 20 Feet High Use 4″ x 6″ Uprights
For bricklayers, stone masons, stone cutters, concrete workers and other trades using heavy tools or storing heavy materials on the scaffold.

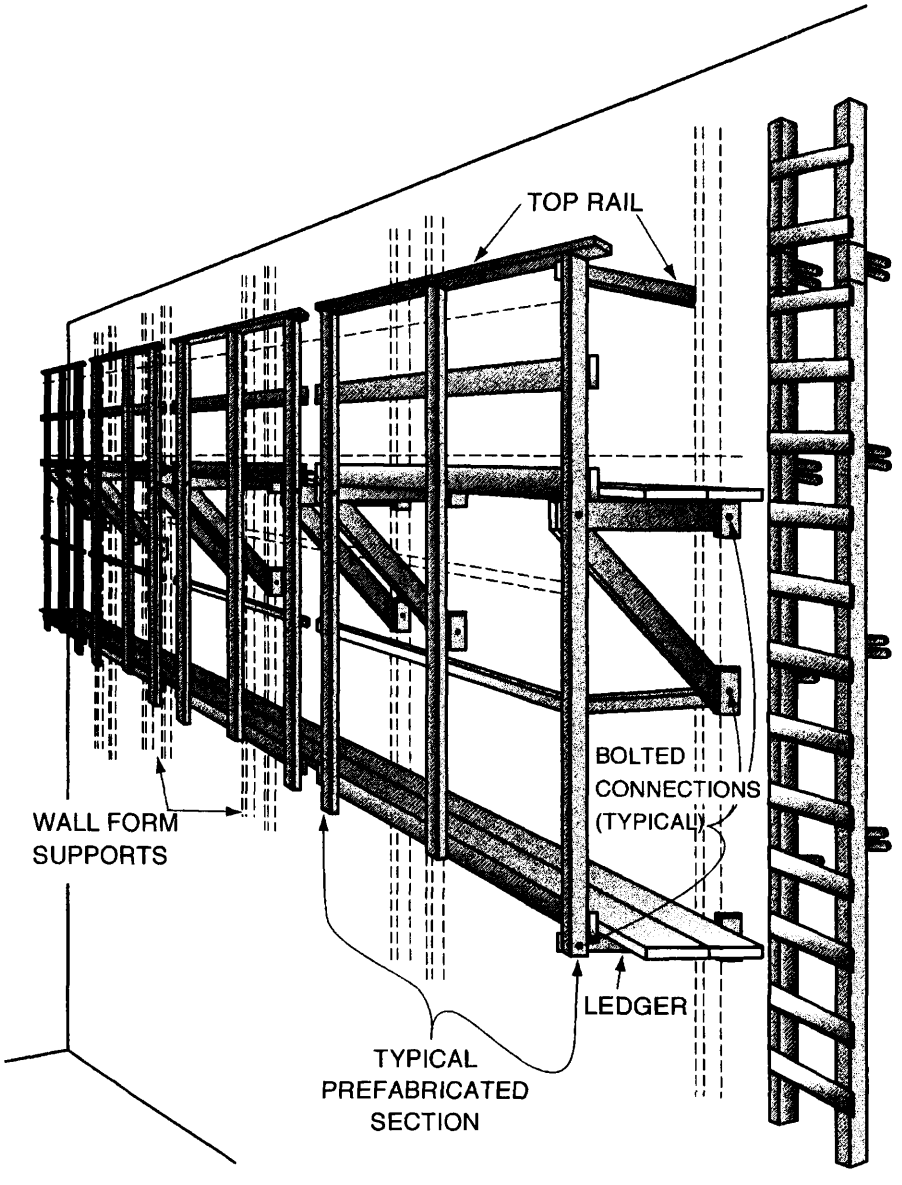



NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate B–19 filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
2. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
3. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–20
WOODEN BRACKET SCAFFOLD (Suggested)
(Can be Prefabricated for Attachment to Wall Forms at Various Positions, Or Can be Made As a Permanent Part of Movable Form Panel)




NOTE: (1) Maximum load is 25 psf.

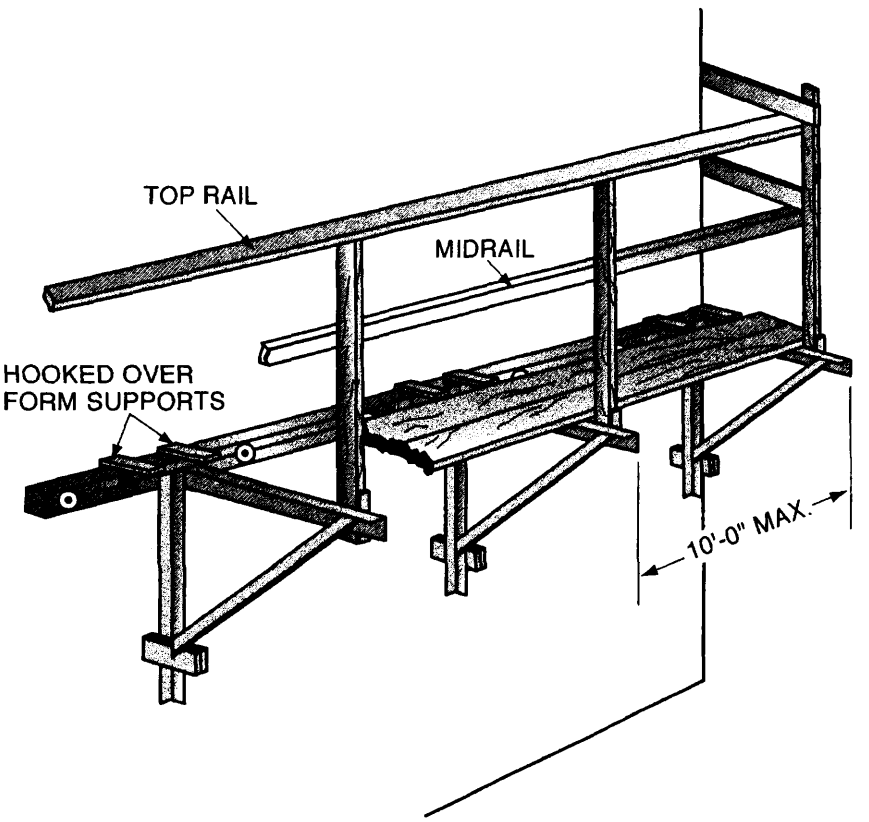
(2) For railing and toeboard requirements, see Article 16 and Section 1645.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–21
METAL BRACKET SCAFFOLD (Suggested)
("WALER JACK")




NOTE: Bracket should not be used on walers held by wire ties unless there are at least three such ties fairly close to each jack. Bolted walers are preferred where brackets are used.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–22
LIMIT SPANS TO 7′ 6″ (Suggested)
(FOR MULTIPLE SCAFFOLD USE AT LEAST
3″ x 16″ OUTRIGGERS)

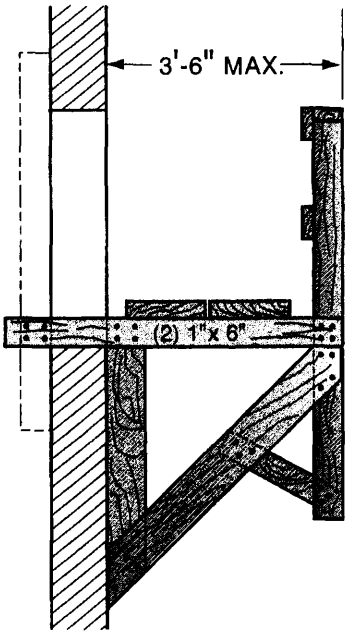



FIGURE FOUR SCAFFOLD
(SUGGESTED)
LIMIT SPANS TO 10' - 0"

NOTE: END RAILING
PROTECTION IS
REQUIRED.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

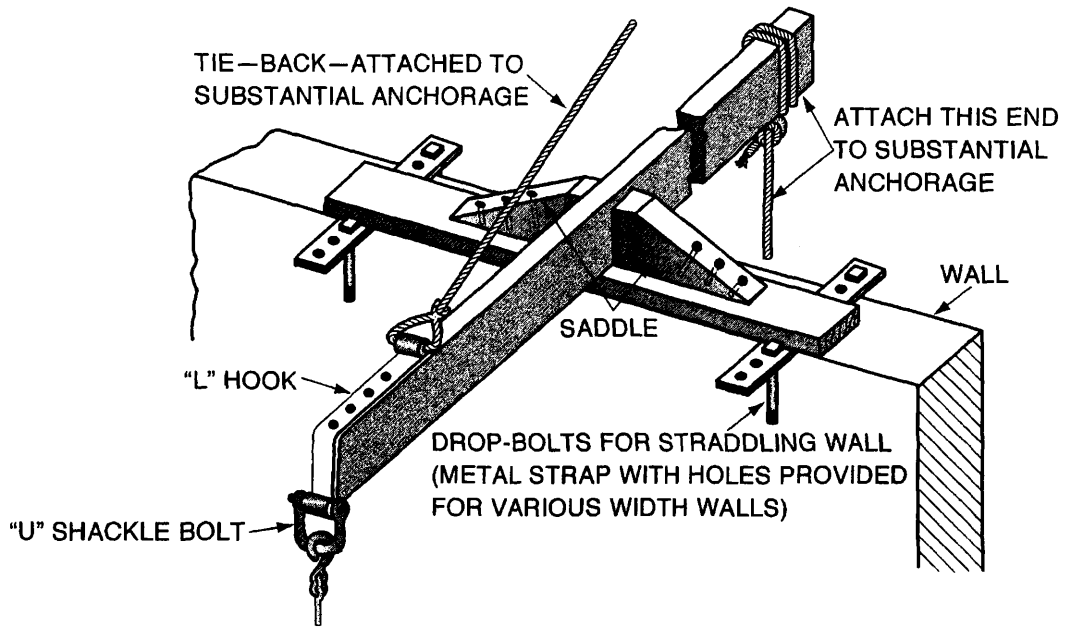
HISTORY
1. Amendment filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–23
BOATSWAIN'S CHAIR (Suggested)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Amendment of Plates B–18, B–19, B–20, B–21, B–22 and B–23 filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Relocation and amendment of former Plate B–23 to Section 1662 (j) filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

PLATE B–24
OUTRIGGER BEAM FOR SUSPENDED STAGING (Suggested)




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of former Plate B–24 to Plate B–26 and renumbering and amendment of Plate B–23–a to Plate B–24 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–24
ACCEPTABLE SCAFFOLDS (Suggested)

HISTORY

1. Renumbering and amendment of former Plate B–24 to Plate B–26 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

PLATE B–24–a
SUSPENDED LADDER SCAFFOLD (Suggested)

HISTORY

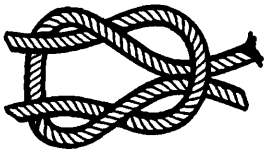
1. Renumbering and amendment of Plate B–24–a to Plate B–26–a filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

PLATE B–25
SWING STAGE SHOWING CENTER SUPPORT

HISTORY

1. Renumbering and amendment of Plate B–25 to Plate B–28 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

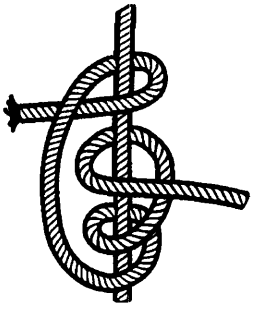
PLATE B–25-a
SAFE HITCHES AND KNOTS



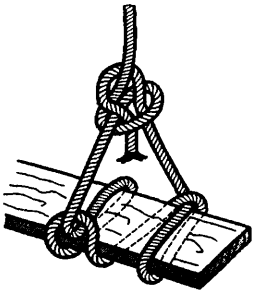
SQUARE KNOT
A safe means of fastening together the ends of two ropes of the same diameter



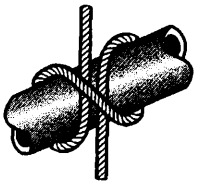
BOWLINE
A loop which will not slip or draw tight



ROLLING, OR TAUT–LINE HITCH
Hitch for holding tension in a line—a snubbing hitch



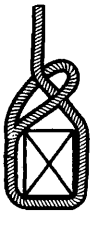
SCAFFOLD HITCH
For fastening single scaffold planks, to hang level



CLOVE HITCH



ROUND TURN AND TWO HALF–HITCHES
For fastening a scaffold line to a supporting beam



EYE SPLICE



RUNNING BOWLINE



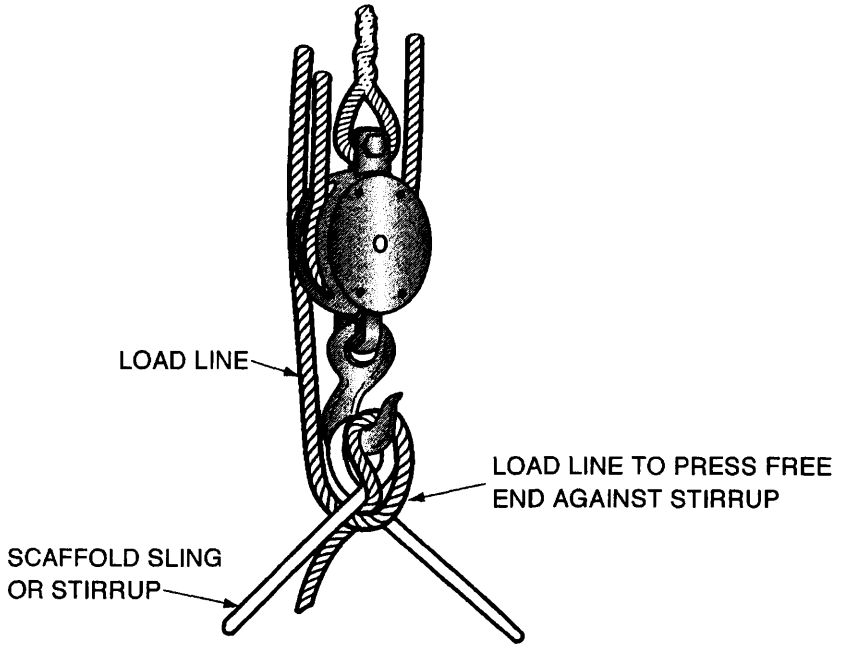
ROUND TURN AND TWO HALF-HITCHES

Hitches for holding needle beams

HISTORY

1. Renumbering of Appendix Plate C–7 to B–25–a filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–25–b
PAINTER'S HITCH



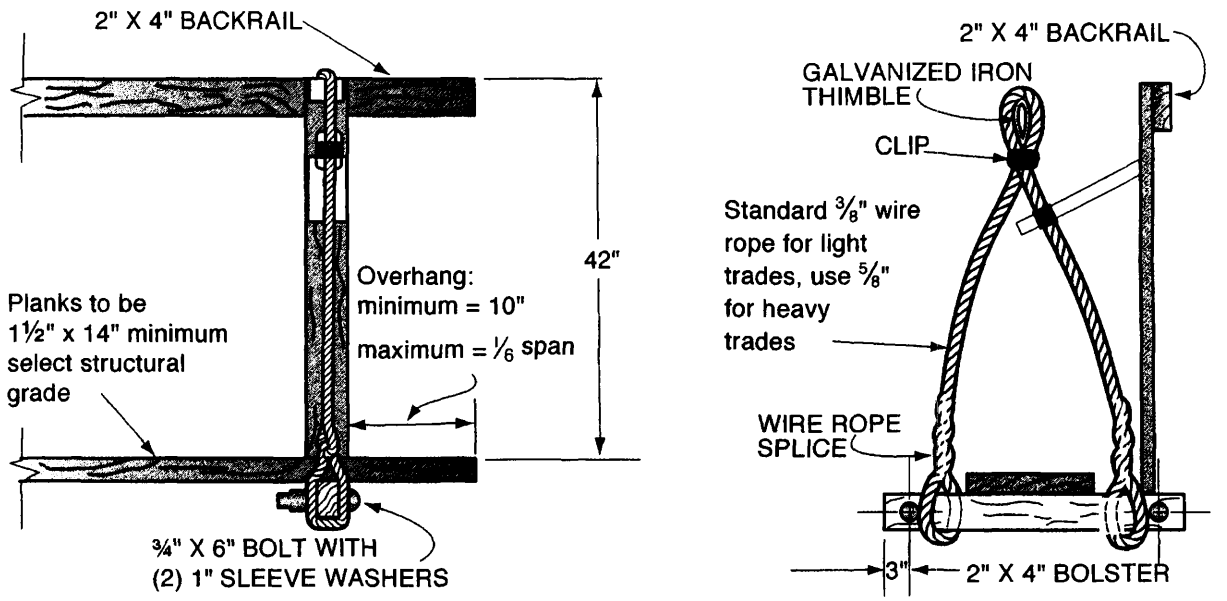

*STEPS IN MAKING A SAFE HITCH*

1. *Locate and prepare place where load is to go.*
2. *Determine the weight of the load.*
3. *Determine the places where the hitching equipment is to be put on.*
4. *Decide on the type of hitch and hitching equipment which is necessary.*
5. *Decide on size of hitching equipment.*
6. *Put on hitch after checking condition of hitching equipment.*
7. *Take out the slack and check the hitch.*
8. *Raise the load to a safe level and travel to destination.*
9. *Lower the load near the landing area.*
10. *Adjust the blocking.*
11. *Set the load down on the blocking.*
12. *Remove the hitching equipment.*
13. *Check the hitching equipment.*
14. *Return equipment to proper place.*

HISTORY

1. Renumbering of Appendix Plate C–8 to B–25–b filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Change without regulatory effect amending step 1 in Plate B–25–b filed 5–28–91 pursuant to section 100, title 1, California Code of Regulations (Register 91, No. 27).
3. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–26
ACCEPTABLE SCAFFOLDS
(Suggested*)
SUSPENDED SCAFFOLD



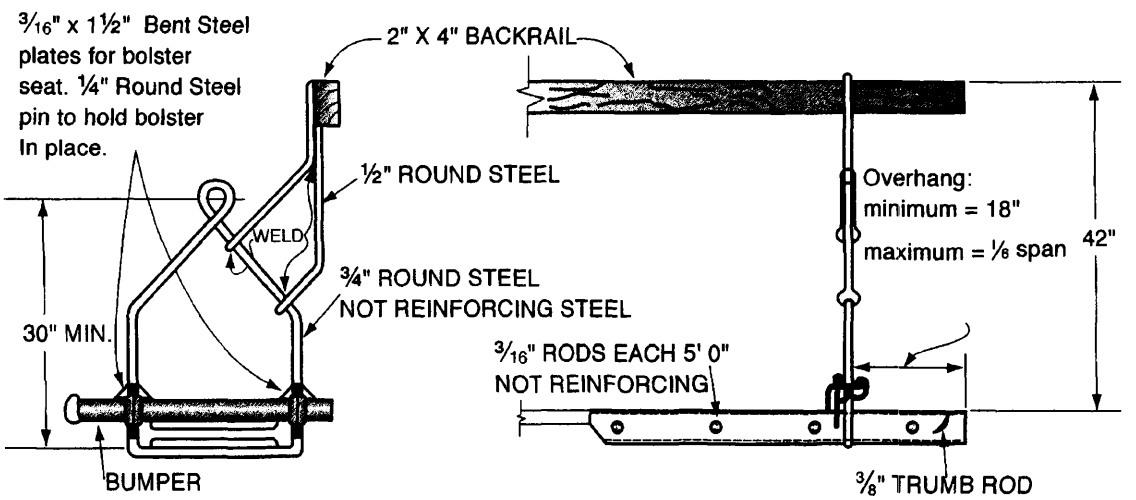

*See section 1658 for required railing protection

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of Plate B–26 filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Renumbering and amendment of former Plate B–26 to Plate B–29, and renumbering and amendment of former Plate B–24 to Plate B–26 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
3. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–26–a
SUSPENDED LADDER SCAFFOLD
(Suggested)*




*See Section 1658 for required railing protection.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of Plate B–24–a to Plate B–26–a filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–27
MASON'S OUTRIGGER SCAFFOLD
(Suggested)

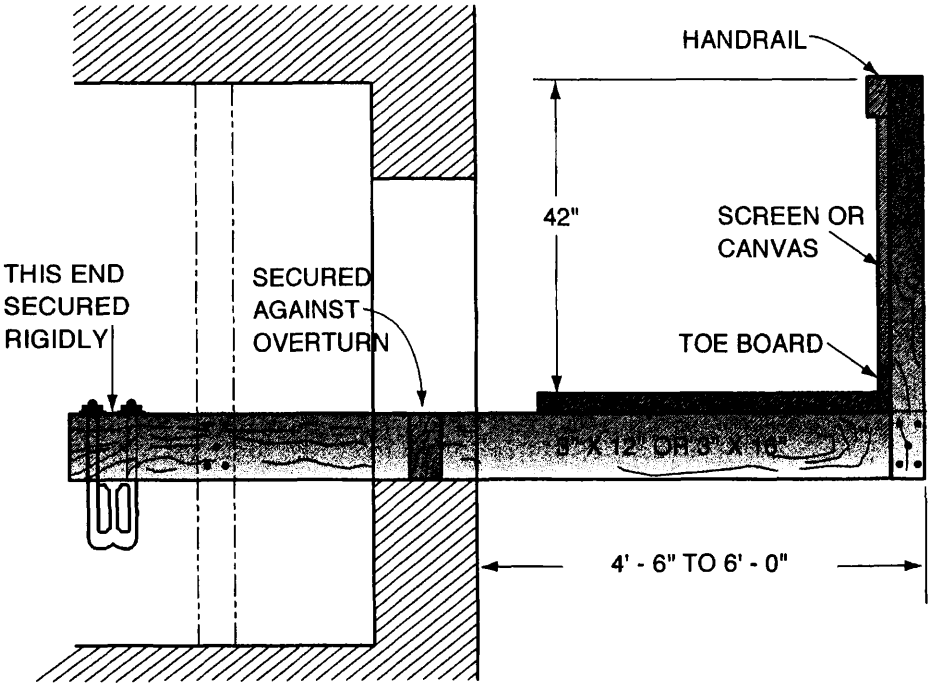
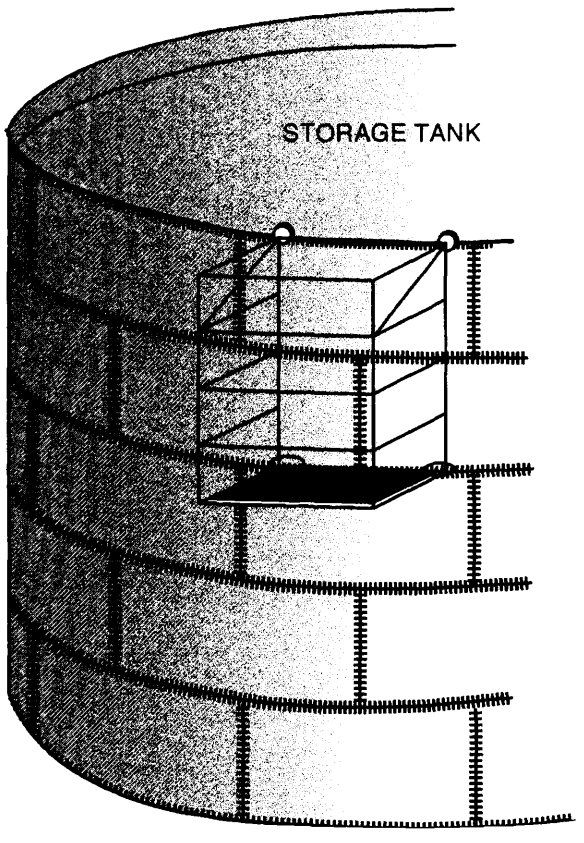
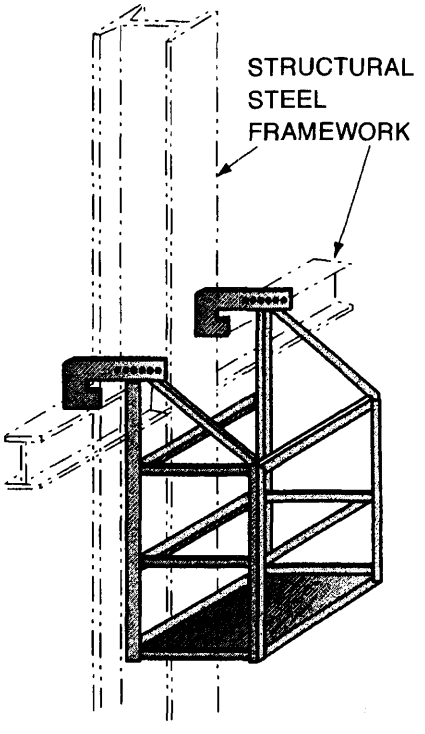


PLATE B–27–a
WELDERS' PLATFORM CAGES (Suggested)




ROLLING PLATFORM CAGE

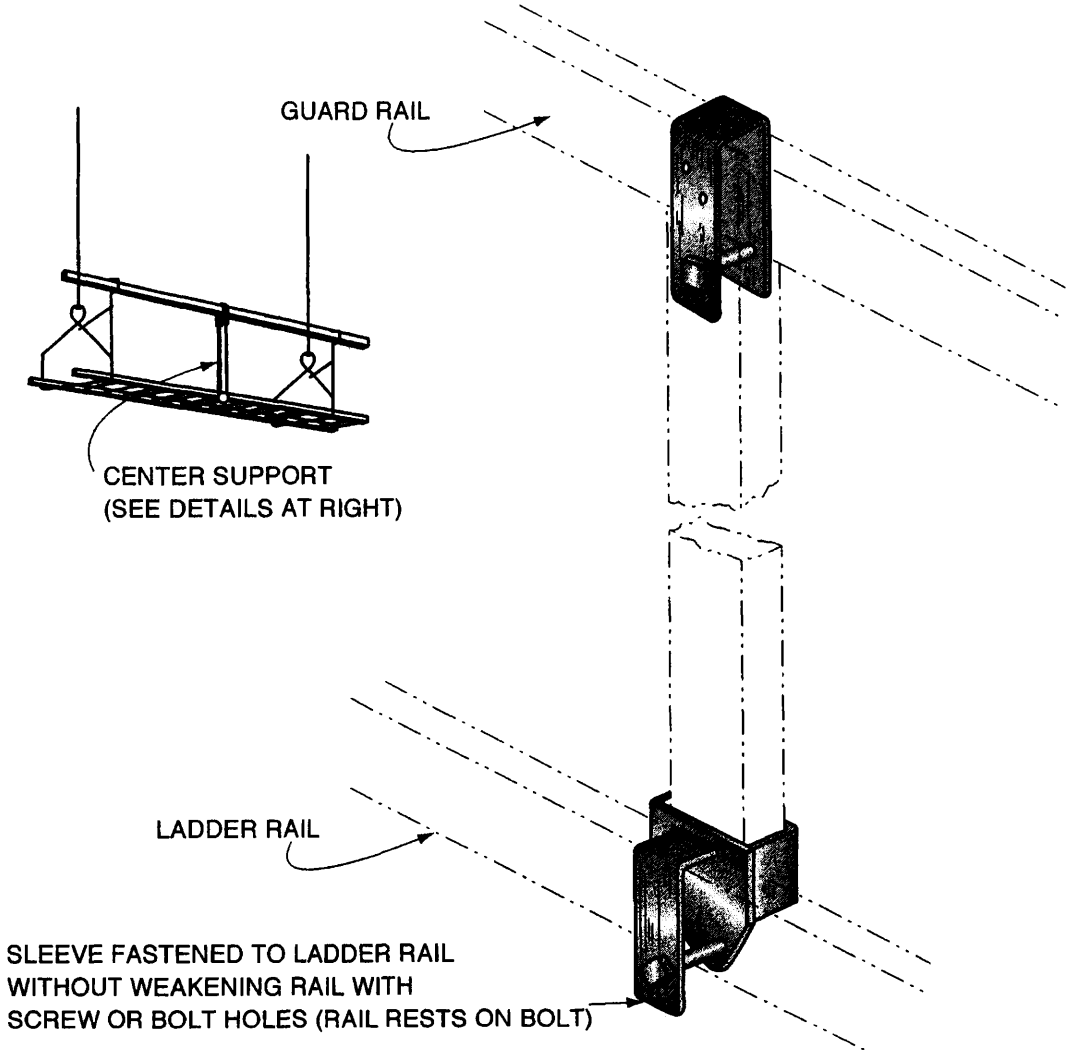



STATIONARY
PLATFORM CAGE

HISTORY

1. Renumbering of Plate B–28 to Plate B–27–a filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations for plates B–27 and B–27–a filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–28
SWING STAGE SHOWING CENTER SUPPORT ACCEPTABLE
FOR RAILING REINFORCEMENT*



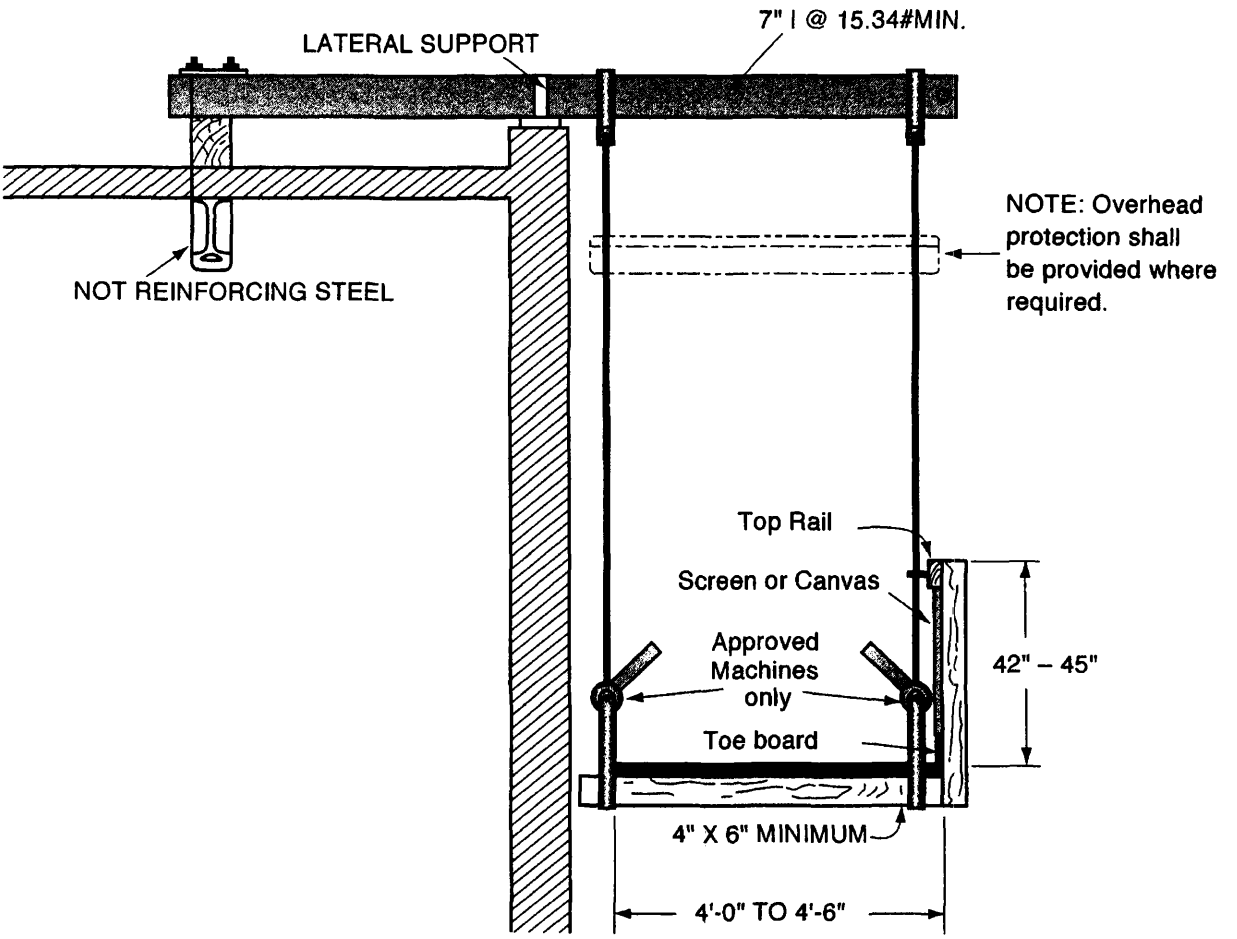

*See Section 1658 for required railing protection.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of former Plate B–28 to Plate B–27–a and renumbering and amendment of Plate B–25 to Plate B–28 filed 7—24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–29
ACCEPTABLE MASONS' SUSPENDED SCAFFOLD
That Will Comply with Order No. 1659
Limit Plank Spans to 8′ –0″




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of former Plate B–29 to Plate B–31, and renumbering and amendment of Plate B–26 to Plate B–29 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATES B–29, B–29–a and B–29–b

HISTORY

1. Renumbering of former Plates B–29, B–29–a and B–29–b to Plates B–31, B–31–a and B–31–b filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

PLATE B–30

Nails and Spikes.

(1) Safe Lateral Strength. A common wire nail driven perpendicular to grain of the wood, when used to fasten wood members together, shall not be subjected to a greater load causing shear and bending than the safe lateral strength of the wire nail or spike as set forth in Plate B–30–a.

A wire nail driven parallel to the grain of the wood or toe nailed shall not be subjected to more than two–thirds of the lateral load allowed when driven perpendicular to grain.

PLATE B–30–a
SAFE LATERAL STRENGTH AND REQUIRED PENETRATION OF COMMON WIRE NAILS
Driven Perpendicular to Grain of the Wood

| Size of nail | Standard length (inches) | Wire gauge | Penetration required (inches) | Loads (pounds) | | |
|---|---|---|---|---|---|---|
| | | | | Douglas fir or southern pine | Redwood | Other species |
| 6d | 2 | 11½ | 1 | 70 | 58 | As determined by the enforcing agency |
| 8d | 2½ | 10¼ | 1¼ | 100 | 82 | |
| 10d | 3 | 9 | 1½ | 120 | 98 | |
| 12d | 3¼ | 9 | 1½ | 130 | 106 | |
| 16d | 3½ | 8 | 1¾ | 160 | 123 | |
| 20d | 4 | 6 | 2 | 190 | 155 | |
| 30d | 4½ | 5 | 2¼ | 230 | 188 | |
| 40d | 5 | 4 | 2½ | 270 | 220 | |
| 50d | 5½ | 3 | 2¾ | 310 | 250 | |
| 60d | 6 | 2 | 3 | 360 | 295 | |

(2) Safe Resistance to Withdrawal. A wire nail driven perpendicular to grain of the wood shall not be subjected to a greater load, tending to cause withdrawal, than the safe resistance of the nail to withdrawal, as set forth in Plate B–30–b.

Nails driven parallel to grain of the wood shall not be allowed for resisting withdrawal forces.

PLATE B–30–b
SAFE RESISTANCE TO WITHDRAWAL OF COMMON WIRE NAILS
Inserted Perpendicular to Grain of the Wood, in Pounds per Linear Inch of Penetration into the Main Member

| Kind of wood | Size of nail | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 6d | 8d | 10d | 12d | 16d | 20d | 30d | 40d | 50d | 60d |
| Douglas Fir or Southern Pine or Redwood | 27 | 29 | 35 | 35 | 39 | 48 | 52 | 56 | 61 | 67 |
| Other species | As determined by the enforcing agency | | | | | | | | | |

(3) Spacing and Penetration. Common wire nails shall have penetration into the piece receiving the point as set forth in Plate B–30–a. Nails or spikes, for which the wire gauges or lengths are not specified in Plate B–30–a, shall have a required penetration of not less than nine and one–half diameters, and allowable loads may be interpolated.

For wood to wood joints the spacing center–to–center shall be not less than the required penetration.

Edge and end distances shall be not less than one–half of the required penetration.

Holes for nails, where necessary to prevent splitting, shall be bored of a diameter smaller than that of the nails.

PLATE B–31 BOLTS

Safe loads in pounds for bolts in double shear and in seasoned lumber of the following species: cypress, southern; Douglas fir (coast and inland region); larch, wester; pine, southern yellow; in joints consisting of three members in which the side members are one–half the thickness of the main member, shall not exceed values set forth in Plates B–31–a, –b.

PLATE B–31–a
HOLDING POWER OF BOLTS
Loads Parallel to Grain (p)

| Length of bolt in main member [1] (inches) | Diameter of bolt (inches) | | | | | | |
|---|---|---|---|---|---|---|---|
| | ½ | ⅝ | ¾ | ⅞ | 1 | 1⅛ | 1¼ |
| 1⅝ | 910 | 1,160 | 1,390 | 1,630 | 1,860 | | |
| 2⅝ | 1,150 | 1,700 | 2,190 | 2,610 | 3,010 | | |
| 3⅝ | 1,160 | 1,810 | 2,570 | 3,310 | 3,990 | | |
| 4½ | 1,160 | 1,810 | 1,600 | 2,530 | 4,480 | 5,380 | |
| 5½ | – | 1,810 | 2,620 | 3,550 | 4,610 | 5,800 | |
| 6½ | – | 1,810 | 2,600 | 2,550 | 4,630 | 5,850 | |
| 7½ | – | 1,810 | 2,600 | 3,550 | 4,630 | 5,850 | |
| 9½ | – | – | 2,600 | 3,550 | 4,630 | 5,350 | 7,240 |
| 11½ | – | – | – | – | 4,630 | 5,850 | 7,240 |

[1] This assumes dressed size lumber. Safe loads for other lengths of bolt in main member may be obtained by interpolation.

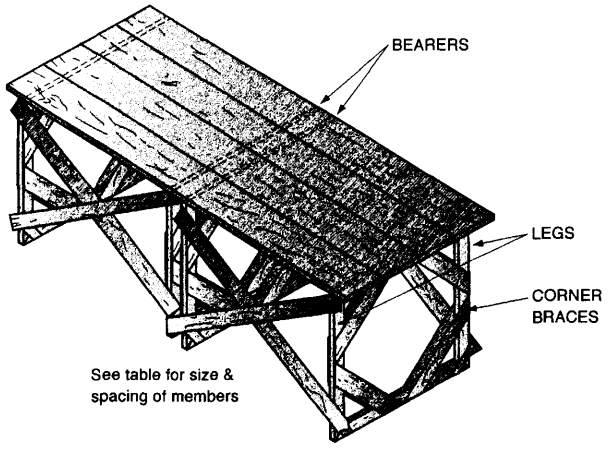
PLATE B–31–b
HOLDING POWER OF BOLTS
Loads Perpendicular to Grain (q)

| Length of bolt in main member [1] (inches) | Diameter of bolt (inches) | | | | | | |
|---|---|---|---|---|---|---|---|
| | ½ | ⅝ | ¾ | ⅞ | 1 | 1⅛ | 1¼ |
| 1⅝ | 430 | 490 | 540 | 600 | 660 | | |
| 2⅝ | 700 | 790 | 880 | 970 | 1,050 | | |
| 3⅝ | 920 | 1,090 | 1,210 | 1,340 | 1,460 | | |
| 4½ | 920 | 1,300 | 1,510 | 1,660 | 1,810 | 1,970 | |
| 5½ | – | 1,800 | 1,750 | 2,020 | 2,210 | 2,410 | |
| 6½ | – | 1,250 | 1,750 | 2,260 | 2,590 | 2,860 | |
| 7½ | – | 1,170 | 1,890 | 2,250 | 2,820 | 3,250 | |
| 9½ | – | – | 1,520 | 2,120 | 2,760 | 3,450 | 4,130 |
| 11½ | – | – | – | – | 2,570 | 3,200 | 4,040 |

[1] This assumes dressed size lumber. Safe loads for other lengths of bolt in main member may be obtained by interpolation.

History
1. Renumbering and amendment of Plates B–29, B–29–a and B–29–b to Plates B–31, B–31–a and B–31–b filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

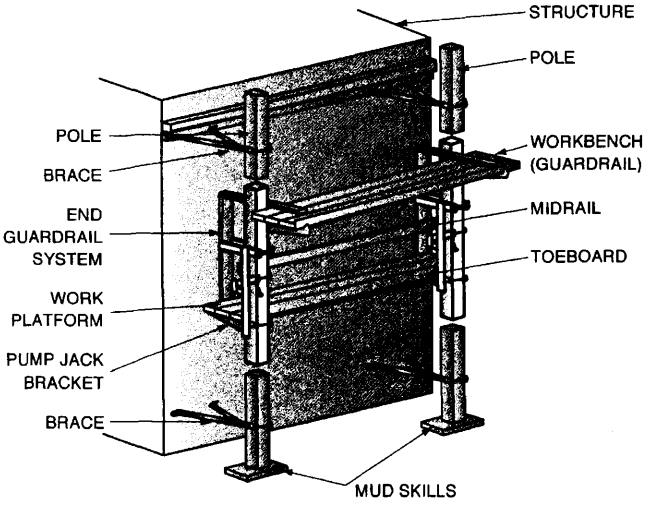
PLATE B–32
(EXAMPLE)
BRICKLAYERS' SQUARE SCAFFOLD




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3. Labor Code.

History
1. New Plate B–32 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

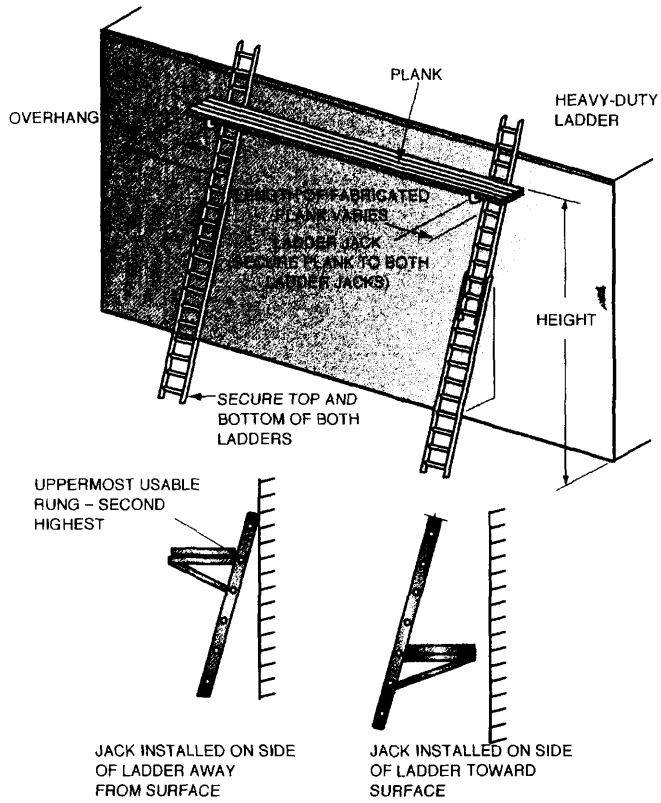
PLATE B–33
PUMP JACK SCAFFOLD
(EXAMPLE)




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3. Labor Code.

History
1. New Plate B–33 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

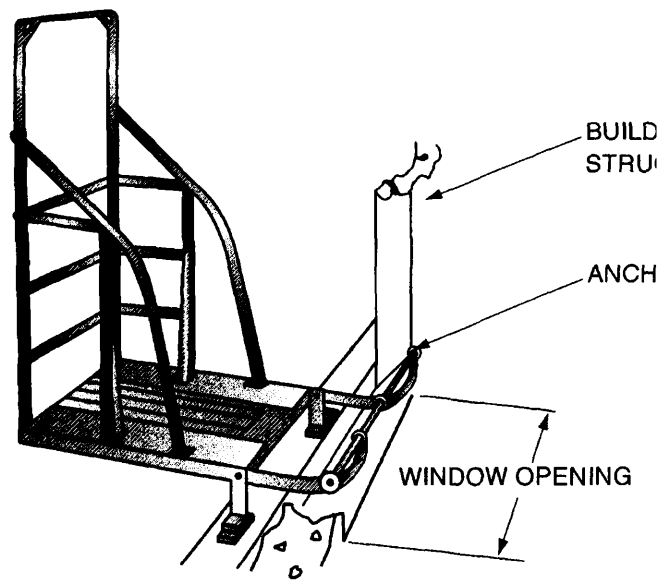
PLATE B–34
(EXAMPLE)
LADDER JACK SCAFFOLD




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New Plate B–34 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

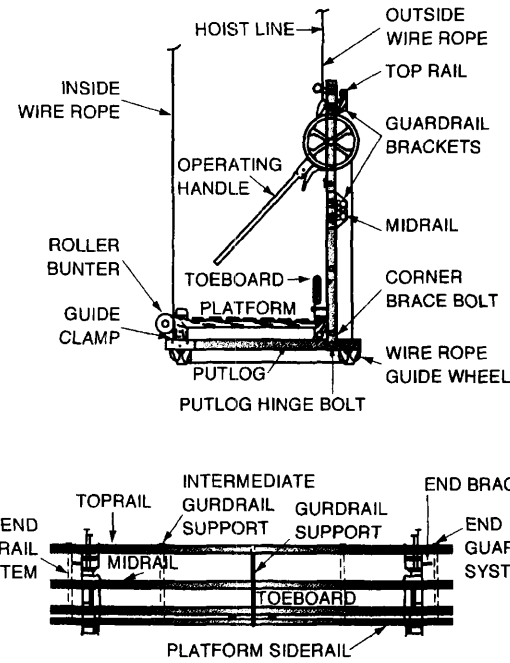
PLATE B–35
(EXAMPLE)
WINDOW JACK SCAFFOLD




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New Plate B–35 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

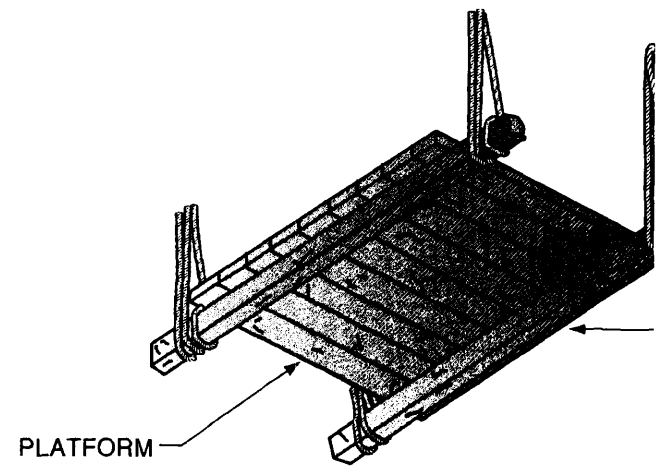
PLATE B–36
(EXAMPLE) STONE SETTERS' ADJUSTABLE MULTI-POINT SUSPENDED SCAFFOLD WITH MANUAL WINDING DRUM HOISTS




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New Plate B–36 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–37
NEEDLE BEAM SCAFFOLD
(EXAMPLE)
STRUCTURAL MEMBER ABOVE

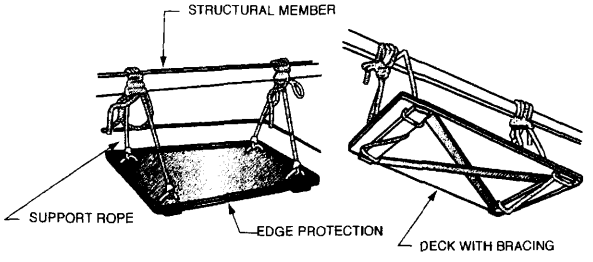



NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Plate B–37 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–38
FLOAT SCAFFOLD
(EXAMPLE)

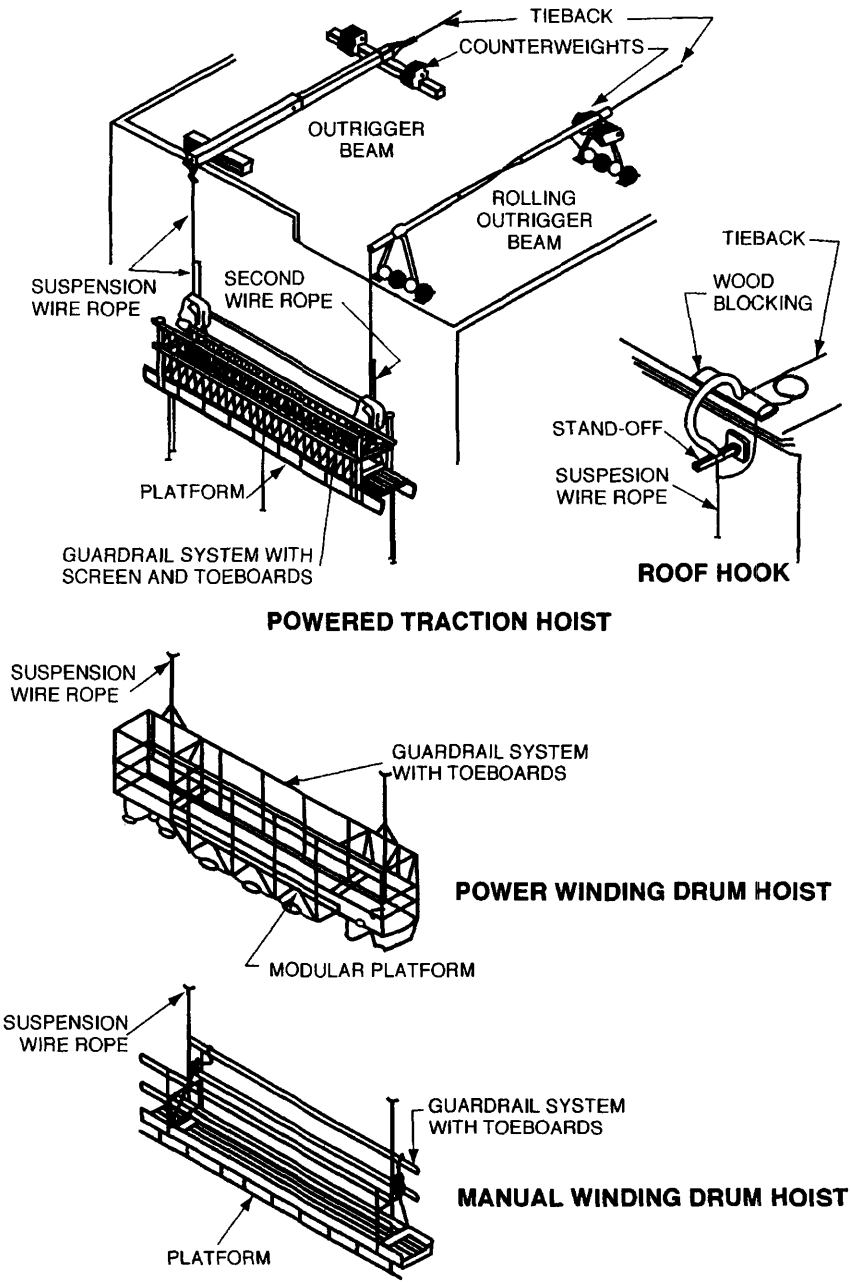



NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Plate B–38 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–39
TWO–POINT SUSPENDED SCAFFOLD
(Example)

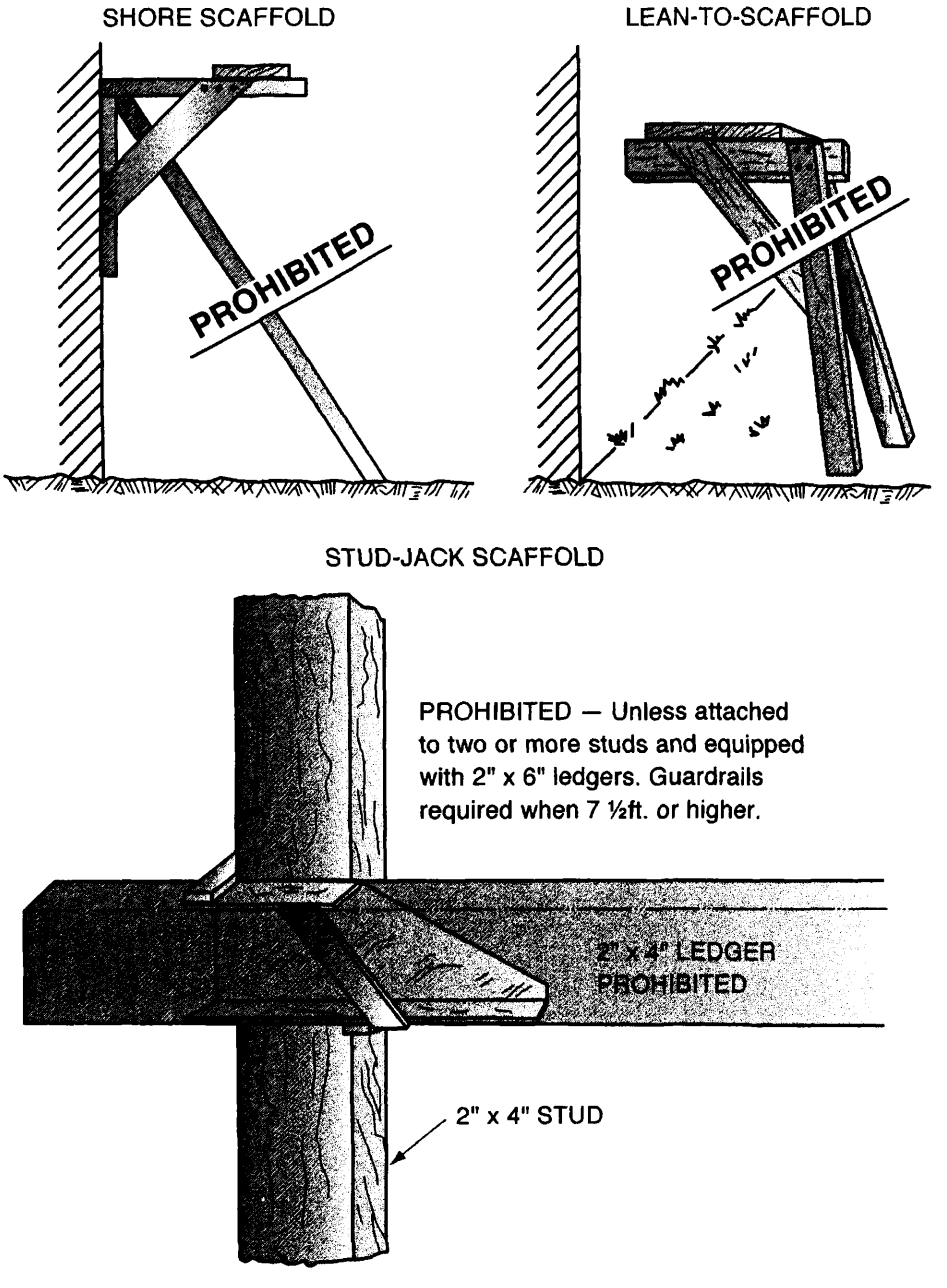



NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Plate B–39 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–40
PROHIBITED SCAFFOLDS
(Examples)

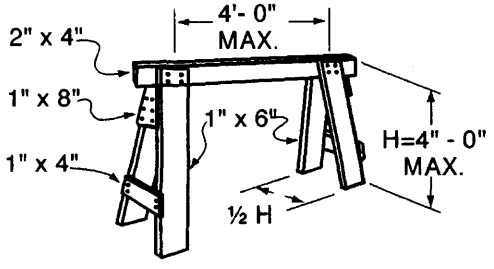



NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

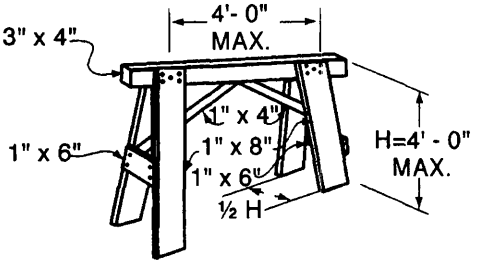
HISTORY

1. Renumbering and amendment of former Plate C–20 to Plate B–40 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

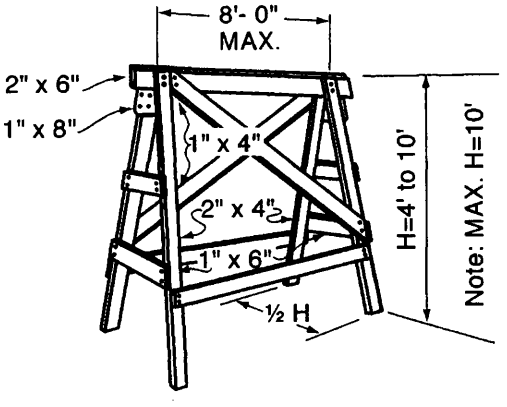
PLATE B–41
SUGGESTED SCAFFOLD HORSES
(See Construction Safety Order 1647)



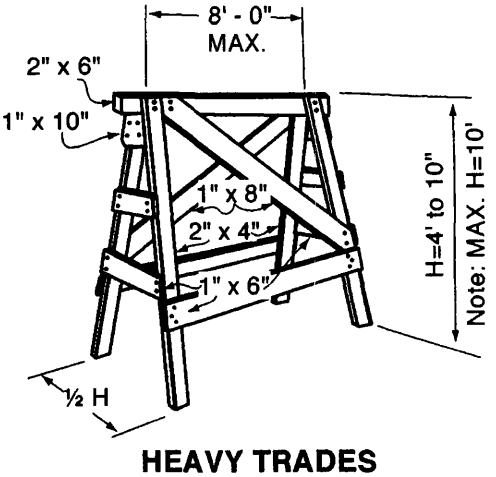

**LIGHT TRADES**



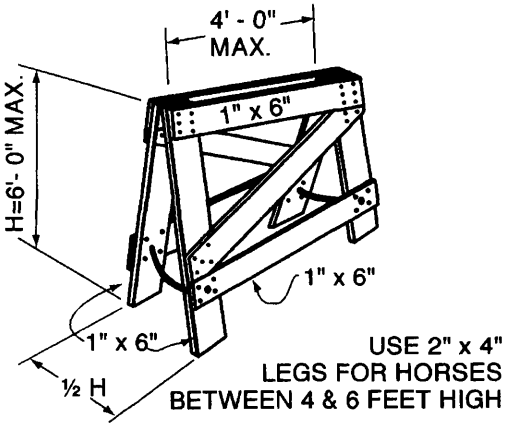

**HEAVY TRADES**



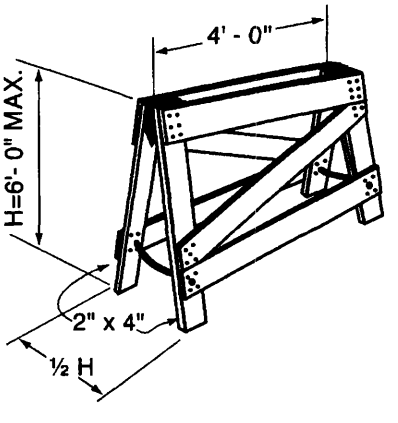

**LIGHT TRADES**




**HEAVY TRADES**




**Collapsible type horse for LIGHT TRADES**



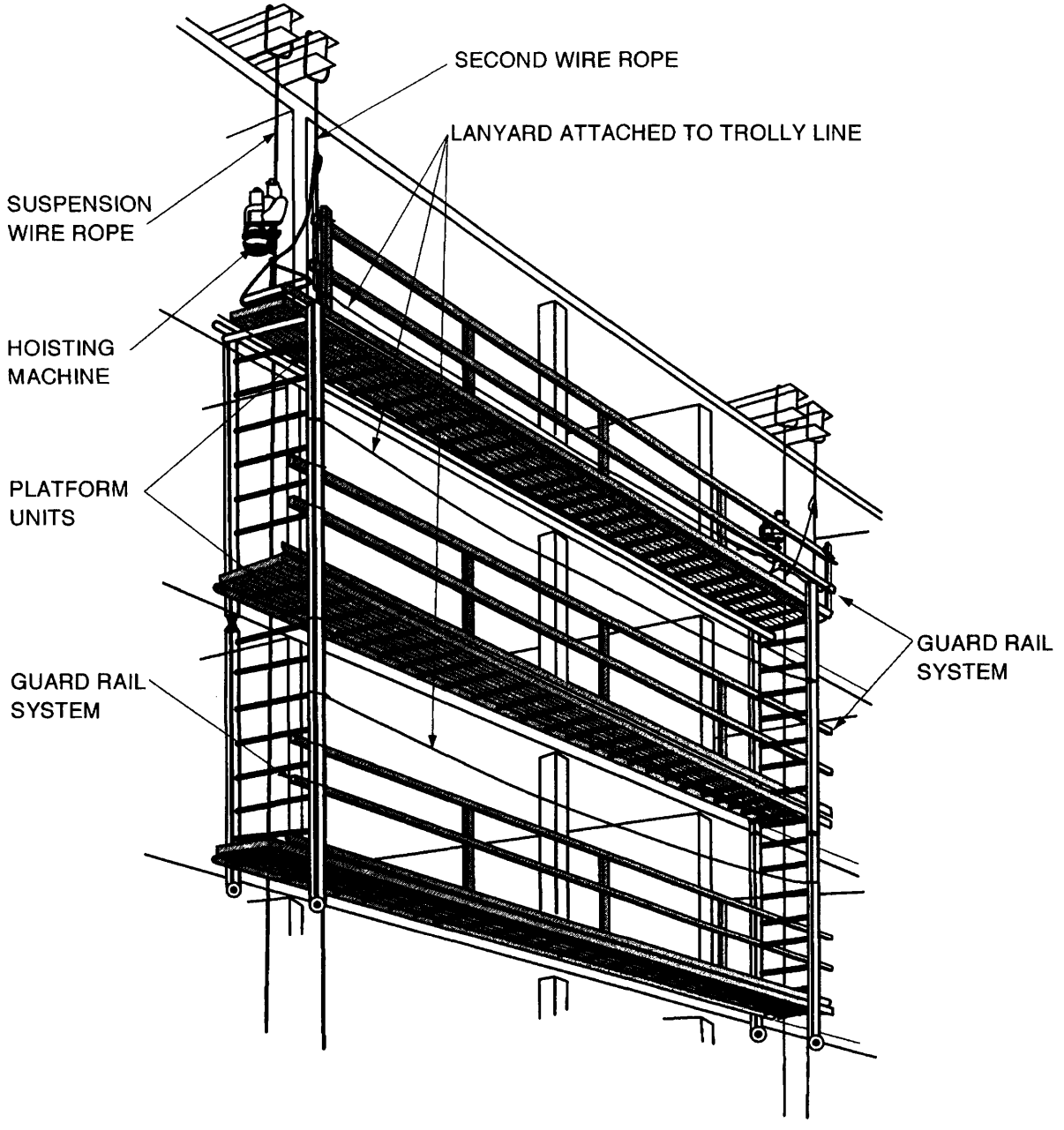

**Collapsible type horse for HEAVY TRADES**

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Renumbering and amendment of former Plate C–21 to Plate B–41 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations and correcting cross–reference filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE B–42
MULTI–LEVEL SUSPENDED SCAFFOLD WITH POWERED HOISTS




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Plate B42 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

## Appendix C

### Helpful Construction Methods

PLATE C–1
EFFICIENCY OF WIRE ROPE CONNECTIONS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–2
APPLYING WIRE ROPE CLIPS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new plate filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–3
SAFE WORKING LOADS FOR SHACKLES

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new plate filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–4
STRENGTH OF MANUFACTURED EYE HOOKS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–5
WIRE ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–6

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–a
RATED CAPACITY
(WORKING LOAD LIMIT),
FOR ALLOY STEEL CHAIN SLINGS RATED CAPACITY
(WORKING LOAD LIMIT),
POUNDS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New plates C–7–a through C–7–n filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–b
MAXIMUM ALLOWABLE WEAR AT ANY POINT OF LINK

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–c
RATED CAPACITIES FOR SINGLE LEG SLINGS
6 X 19 AND 6 X 37 CLASSIFICATION
IMPROVED PLOW STEEL GRADE ROPE WITH FIBER CORE
(FC)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–d
RATED CAPACITIES FOR SINGLE LEG SLINGS
6 X 19 AND 6 X 37 CLASSIFICATION
IMPROVED PLOW STEEL GRADE ROPE WITH INDEPENDENT
WIRE ROPE CORE (IWRC)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–e
RATED CAPACITIES FOR SINGLE LEG SLINGS
CABLE LAID ROPE–MECHANICAL SPLICE ONLY
7 X 7 X 7 & 7 X 7 X 19 CONSTRUCTIONS GALVANIZED
AIRCRAFT GRADE ROPE
7 X 6 X 19 IWRC CONSTRUCTION IMPROVED PLOW STEEL
GRADE ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–f
RATED CAPACITIES FOR SINGLE LEG SLINGS
8–PART AND 6–PART BRAIDED ROPE
6 X 7 AND 6 X 19 CONSTRUCTION IMPROVED
PLOW STEEL GRADE ROPE
7 X 7 CONSTRUCTION GALVANIZED
AIRCRAFT GRADE ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–g
RATED CAPACITIES FOR 2–LEG & 3–LEG BRIDLE SLINGS
6 X 19 AND 6 X 37 CLASSIFICATION
IMPROVED PLOW STEEL GRADE ROPE WITH FIBER CORE
(FC)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–h
RATED CAPACITIES FOR 2–LEG & 3–LEG BRIDLE SLINGS
6 X 19 AND 6 X 37 CLASSIFICATION IMPROVED
PLOW STEEL GRADE ROPE WITH INDEPENDENT WIRE ROPE
CORE (IWRC)

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–i
RATED CAPACITIES FOR 2–LEG & 3–LEG BRIDLE SLINGS
7 X 7 X 7 AND 7 X 7 X 19 CONSTRUCTIONS GALVANIZED
AIRCRAFT GRADE ROPE
7 X 6 X 19 IWRC CONSTRUCTION IMPROVED PLOW STEEL
GRADE ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–j
RATED CAPACITIED FOR 2–LEG AND 3–LEG BRIDLE SLINGS
8–PART AND 6–PART BRAIDED ROPE
6 X 7 SNF 6 X 19
CONSTRUCTION IMPROVED PLOW STEEL GRADE ROPE
7 X 7 CONSTRUCTION GALVANIZED AIRCRAFT GRADE
ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–k
RATED CAPACITIES FOR STRAND LAID GROMMET–HAND
TUCKED IMPROVED PLOW STEEL GRADE ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1–13–87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C–7–l
RATED CAPACITIES FOR CABLE LAID
GROMMET–HAND TUCKED
7 X 6 X 7 AND 7 X 6 X 19 CONSTRUCTIONS IMPROVED
PLOW STEEL GRADE ROPE
7 X 7 X 7 CONSTRUCTION GALVANIZED AIRCRAFT
GRADE ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C-7-m
RATED CAPACITIES FOR STRAND LAID ENDLESS SLINGS-MECHANICAL JOINT IMPROVED PLOW STEEL GRADE ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C-7-n
RATED CAPACITIES FOR CABLE LAID ENDLESS SLINGS-MECHANICAL JOINT
7 X 7 X 7 AND 7 X 7 X 19
CONSTRUCTION GALVANIZED AIRCRAFT GRADE ROPE
7 X 6 X 19 IWRC CONSTRUCTION IMPROVED PLOW STEEL GRADE ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C8-a
MANILA ROPE SLINGS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New plates C-8-a through C-8-d filed 2-19-75; effective thirtieth day thereafter (Register 75, No. 8).
2. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C-8-b
NYLON ROPE SLINGS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C-8-c
POLYESTER ROPE SLINGS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C-8-d
POLYPROPYLENE ROPE SLINGS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C-9
MANILA ROPE

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

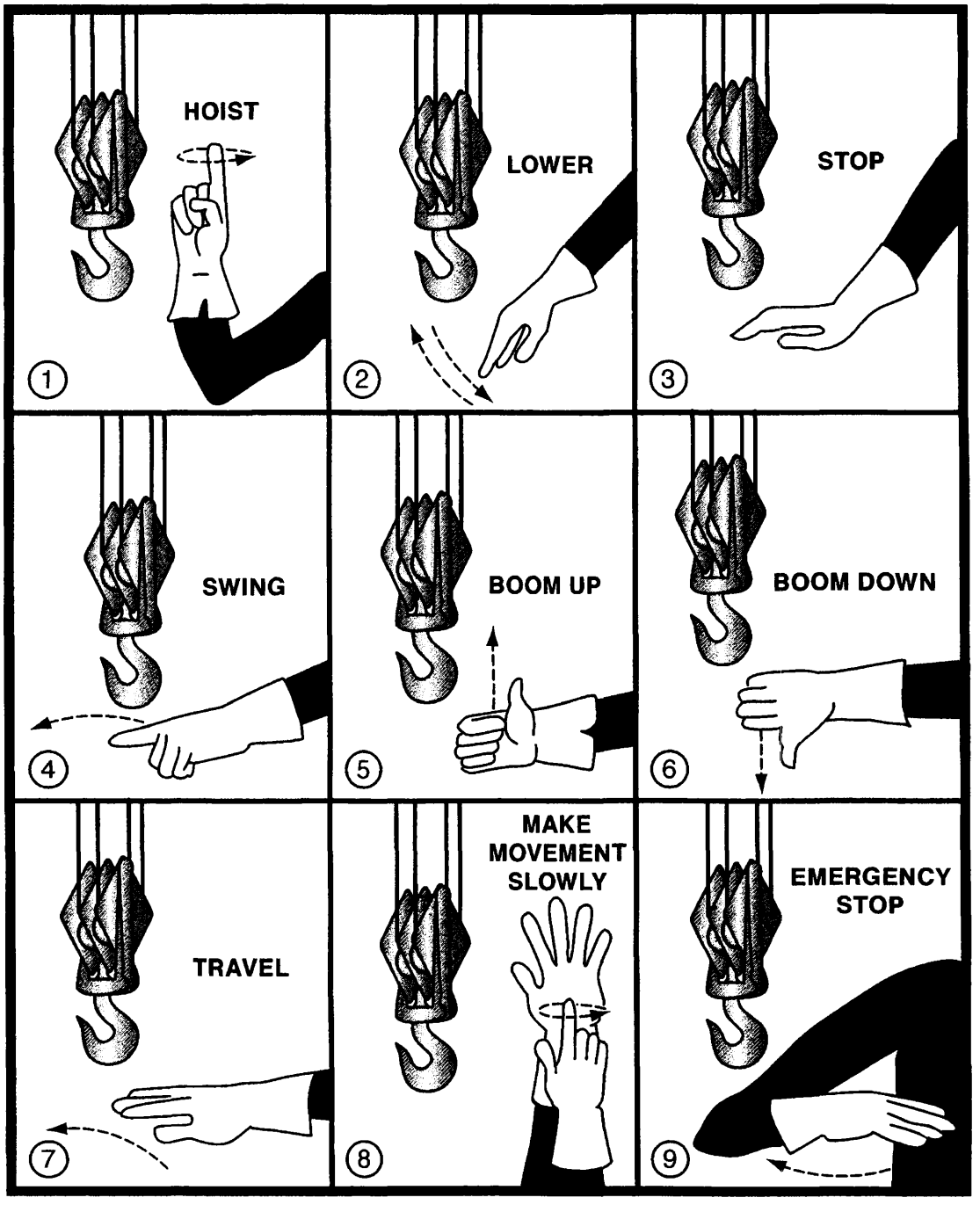
HISTORY
1. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No. 4).

PLATE C-10

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 1-13-87; effective thirtieth day thereafter (Register 87, No.

PLATE C–11
RECOMMENDED HAND SIGNALS FOR
CONTROLLING CRANE OPERATIONS

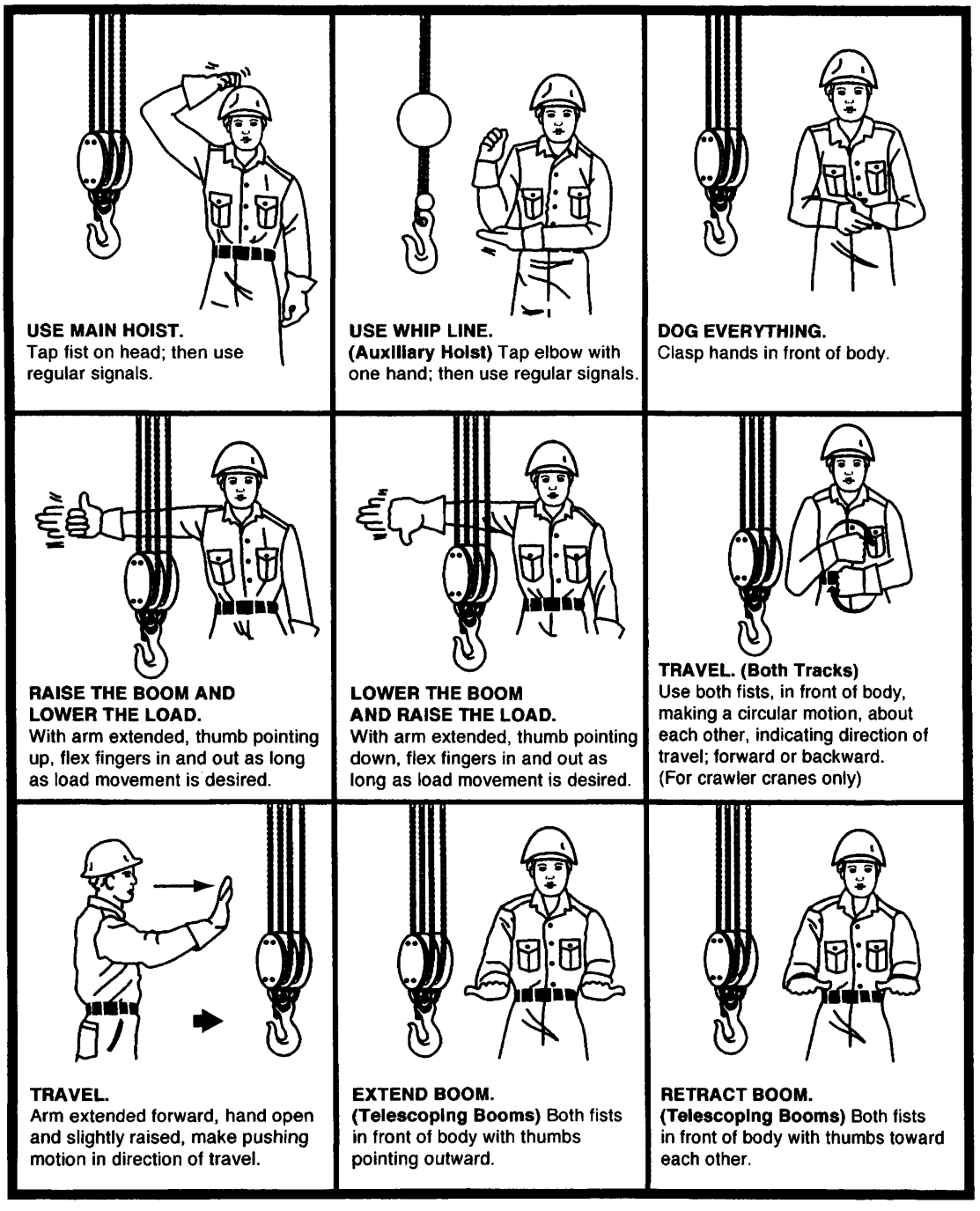



NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate C–11 filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–11–a
RECOMMENDED HAND SIGNALS FOR
CONTROLLING CRANE OPERATIONS

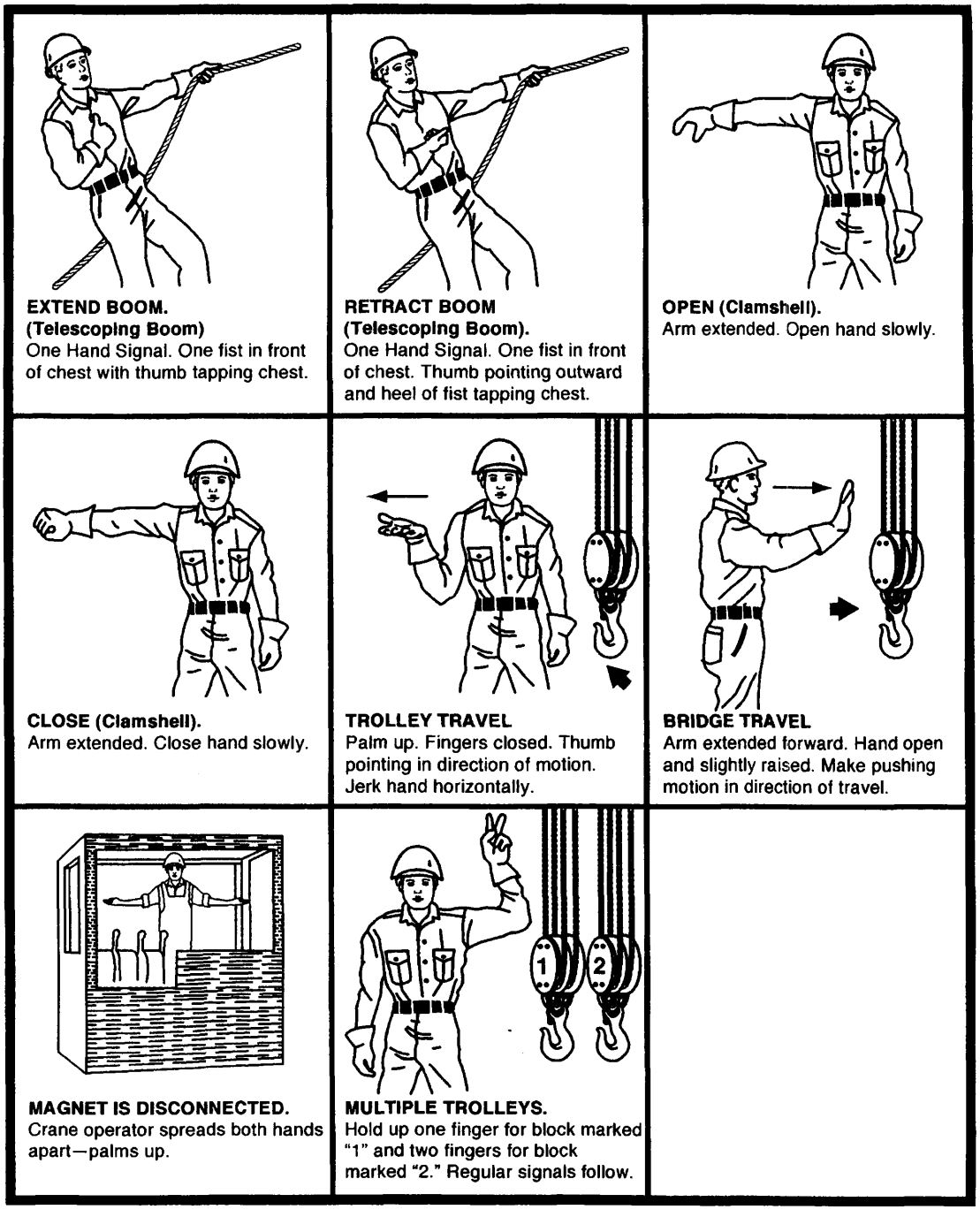



NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate C–11–a filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–11–b
RECOMMENDED HAND SIGNALS FOR CONTROLLING CRANE OPERATIONS




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment of Plate title filed 1–17–80; effective thirtieth day thereafter (Register 80, No. 3).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–11–c
STANDARD CRANES

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–d
STANDARD CRANES

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–e
STANDARD CRANES

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–f
STANDARD CRANES AND DERRICKS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–g
STANDARD CRANES

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–h
STANDARD CRANES

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–i
STANDARD CRANES

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–j
STANDARD DERRICKS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–k
STANDARD DERRICKS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–l
STANDARD DERRICKS

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

PLATE C–11–m

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Repealer and new Plate C–11–m filed 3–19–79; effective thirtieth day thereafter (Register 79, No. 12).
2. Amendment of Plate C–11–m filed 7–3–80 as procedural and organizational; effective upon filing (Register 80, No. 27).
3. Repealer filed 8–29–86; effective thirtieth day thereafter (Register 86, No. 39).

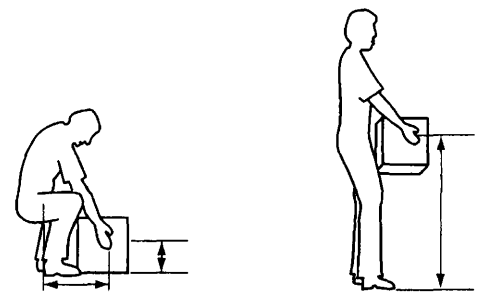
PLATE C–26–a

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. New NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
2. Repealer of Plate C–26–a filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

PLATE C–12
HOW TO LIFT

1. Size up the load first. Get help if you need it.
2. Be sure of your footing.
3. Lift with your legs, not your back.
4. Keep your balance—don't twist under strain or jerk the load.




NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY
1. Change without regulatory effect amending Plate C–12 filed 1–28–93 pursuant to section 100, title 1, California Code of Regulations (Register 94, No. 4).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–13
FIRE EXTINGUISHMENT

*Keep extinguishers in the clear. Do not tamper with them. Know where they are and how to use them.*

*In Case of Fire:*
*1. Turn in an alarm at once.*
*2. Use the right type of extinguisher.*
*3. Use equipment correctly. Do not delay.*
*4. Make certain the fire is out.*
*5. Be sure the equipment is made ready for re-use.*



HISTORY
1. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

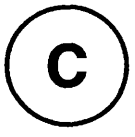
PLATE C–13–a
CLASSES OF FIRES




*Fires in wood, paper, textiles and other carbonaceous materials. These fires are extinguishedby the cooling and quenching action of water and water-based agents or by insulating with general purpose dry chemical.*




*Fires in flammable liquids. These are smothered by carbon dioxide, dry chemical, foam and loaded stream.*




*Fires in live electrical equipment. Extinguishing agents are dry chemical, carbon dioxide, all electrical nonconductors, except as noted in Section 1922 (a)(7).*




*Fires in combustible metals such as magnesium, sodium and potassium. Extinguishing agent is coarse powder which seals the burning surface and smothers the fire.*

HISTORY
1. Amendment filed 11–14–75; effective thirtieth day thereafter (Register 75, No. 46).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–13–b
TYPES OF FIRE EXTINGUISHERS

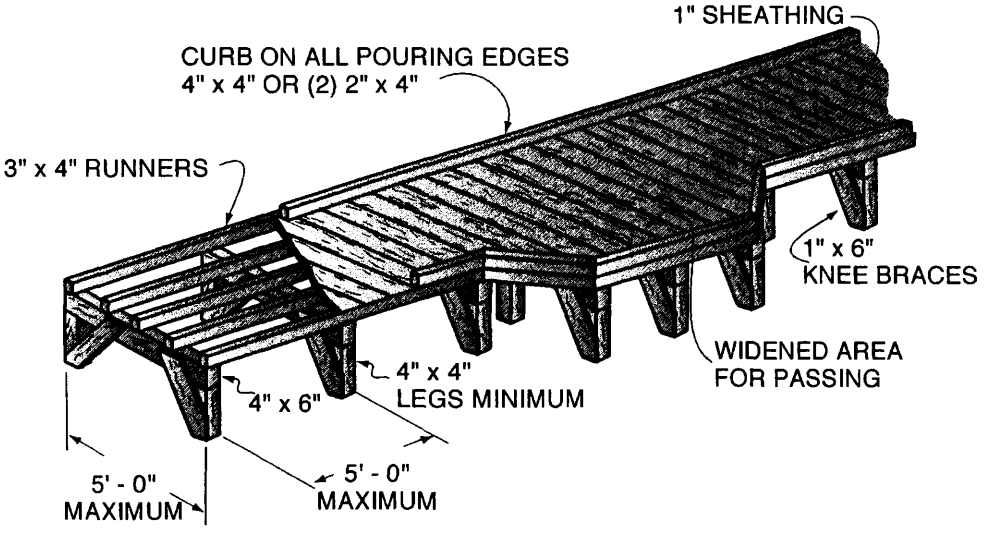
| CLASSES OF FIRES | CARBON DIOXIDE | REGULAR DRY CHEMICAL | GENERAL PURPOSE DRY CHEMICAL | WATER | FOAM | LOADED STREAM |
|---|---|---|---|---|---|---|
| A | Small surface fires only. | Small surface fires only. | YES *Excellent* Fire-retardant blanket prevents reflash. | YES *Excellent* Water saturates material and prevents rekindling. | YES *Excellent* Foam has both smothering and wetting action. | YES *Excellent* Saturates material, prevents rekindling. |
| B | YES *Excellent* Carbon dioxide leaves no residue, does not affect equipment or foodstuffs. | YES *Excellent* Chemical smothers fire. | YES *Excellent* Provides smothering action. | NO Water will spread fire, not put it out. | YES *Excellent* Smothering blanket does not dissipate, floats on top of spilled liquids. | YES Provides smothering action, cools and quenches. |
| C | YES *Excellent* Carbon dioxide is a non-conductor, leaves no residue, will not damage equipment. | YES *Excellent* Chemical is a non - conductor; screen of dry chemical shields operator from heat. | YES *Excellent* Chemical is a non - conductor; screen of dry chemical shields operator from heat. | NO Water, a conductor, should not be used on live electrical equipment. | NO Foam is a conductor and should not be used on live electrical equipment. | NO Liquid is a conductor and should not be used on live electrical equipment. |
| D | Fires in combustible metals such as magnesium, sodium and potassium. Extinguishing agent is coarse powder which seals the burning surface and smothers the fire. | | | | | |

PLATE C–14
TILT–UP CONCRETE SLAB ERECTION METHODS

NOTE: Authority cited: Section 142.3, Labor Code.

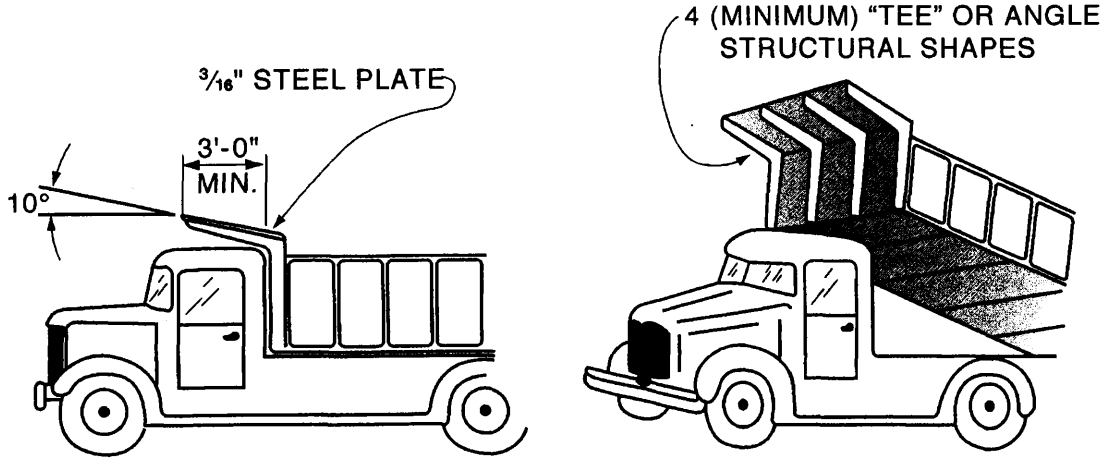
HISTORY
1. Repealer filed 6–21–85; effective thirtieth day thereafter (Register 85, No. 25).

PLATE C–15
RAMP FOR MOTOR–DRIVEN CONCRETE BUGGIES




HISTORY
1. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–16
CAB PROTECTION (FOR TRUCKS HAULING
GRAVEL, ROCK, DIRT, ETC.)




HISTORY
1. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–17
SUGGESTED TEST FOR SCAFFOLD PLANKS

To test scaffold planks a simple impact loading method is as follows:

1. Select a span from the following table that is convenient for the length and size of plank to be tested. Obtain two (2) blocks about two feet (2′) long and of a thickness (given in table) that corresponds to the span and plank size. Set blocks and plank on a flat surface as illustrated, so that clearance between surface and plank is uniform.

2. Have men (two should be enough) spring on the board, standing close together at mid–span, until it deflects to the surface below several times. Do not apply a load so large that the plank is held against the floor. It should touch the floor only for an instant during springing.

3. Listen for cracking and look for splitting.

4. If no cracking or splitting is noted, turn the plank over and repeat the test. If it cracks or splits, reject it.

5. In case of faint cracking sound (caused by stretching of fibers near allowable knots), repeat test, and accept plank if no further cracking sounds are heard.

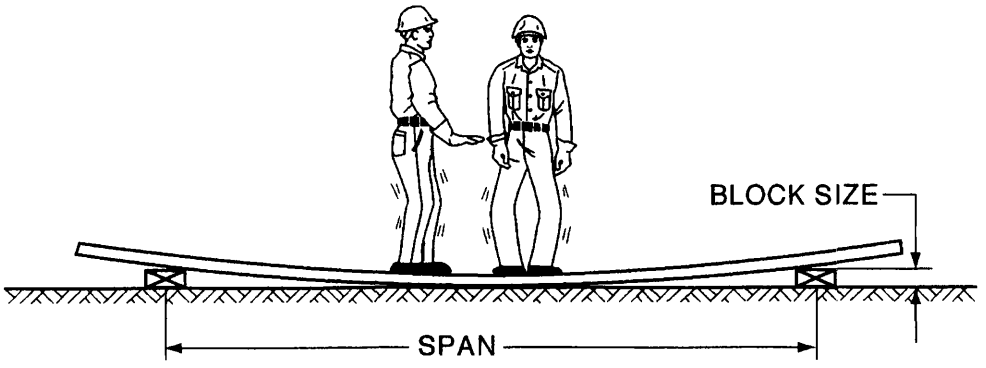
Table of Block Sizes for Various Spans

| *Plank span, feet* | *Plank size, * inches* | *Block size, inches* |
|---|---|---|
| 8 | 2 x 10 or 2 x 12 | 2–1/2 |
| 10 | 2 x 10 or 2 x 12 | 3–1/2 |
| 12 | 2 x 12 | 5–1/2 * |

* All planks must comply with safety orders in regard to grade, size, condition, etc.

The main advantage of this system, in addition to simplicity, is that it will show up wood that is brash or contains compression failures, while not damaging good planks.

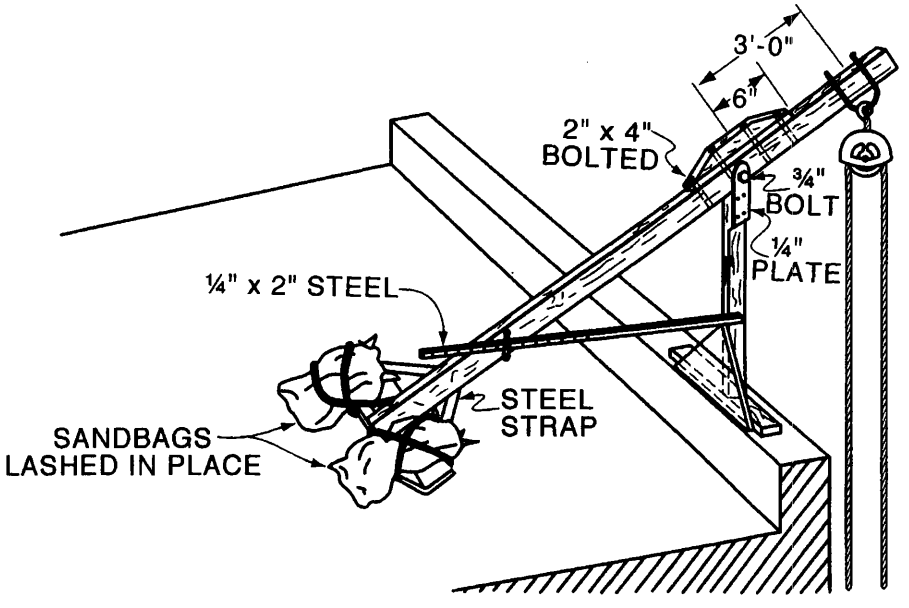
SUGGESTED TEST FOR SCAFFOLD PLANKS




HISTORY

1. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

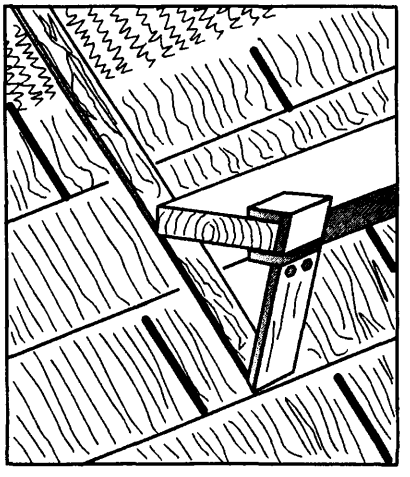
PLATE C–18
ROOFER'S GALLOWS FRAME (Suggested)
MATERIAL—CLEAR, STRAIGHT GRAINED, SELECTED LUMBER OR EQUIVALENT




HISTORY

1. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–19
ROOFER'S JACK (Suggested)
FOR COMPOSITION SHINGLES OR ROLL ROOFING



NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate C–19 filed 6–6–80; effective thirtieth day thereafter (Register 80, No. 23).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–20

HISTORY

1. Renumbering and amendment of former Plate C–20 to Plate B–40 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

PLATE C–21

HISTORY

1. Renumbering and amendment of former Plate C–21 to Plate B–41 filed 7–24–87; operative 8–23–87 (Register 87, No. 33).

PLATE C–22
BEARING VALUE OF SOIL

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 8–23–82; effective thirtieth day thereafter (Register 82, No. 35).
2. Repealer filed 8–26–91; operative 9–25–91 (Register 92, No. 13).

PLATE C–23
SHORING SYSTEM FOR TRENCHES

HISTORY

1. Amendment filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
2. Repealer filed 8–23–82; effective thirtieth day thereafter (Register 82, No. 35).

PLATE C–24–a

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate C–24–a filed 8–23–82; effective thirtieth day thereafter (Register 82, No. 35).
2. Editorial correction of printing error (Register 82, No. 50).
3. Repealer filed 8–26–91; operative 9–25–91 (Register 92, No. 13).

PLATE C–24–b

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate C–24–b filed 8–23–82; effective thirtieth day thereafter (Register 82, No. 35).
2. Editorial correction of printing error (Register 82, No. 50).
3. Repealer filed 8–26–91; operative 9–25–91 (Register 92, No. 13).

PLATE C–24–c

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate C–24–c filed 8–23–82; effective thirtieth day thereafter (Register 82, No. 35).
2. Editorial correction of printing error (Register 82, No. 50).
3. Repealer filed 8–26–91; operative 9–25–91 (Register 92, No. 13).

PLATE C–24–d

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate C–24–d filed 8–23–82; effective thirtieth day thereafter (Register 82, No. 35).
2. Editorial correction of printing error (Register 82, No. 50).
3. Repealer filed 8–26–91; operative 9–25–91 (Register 92, No. 13).

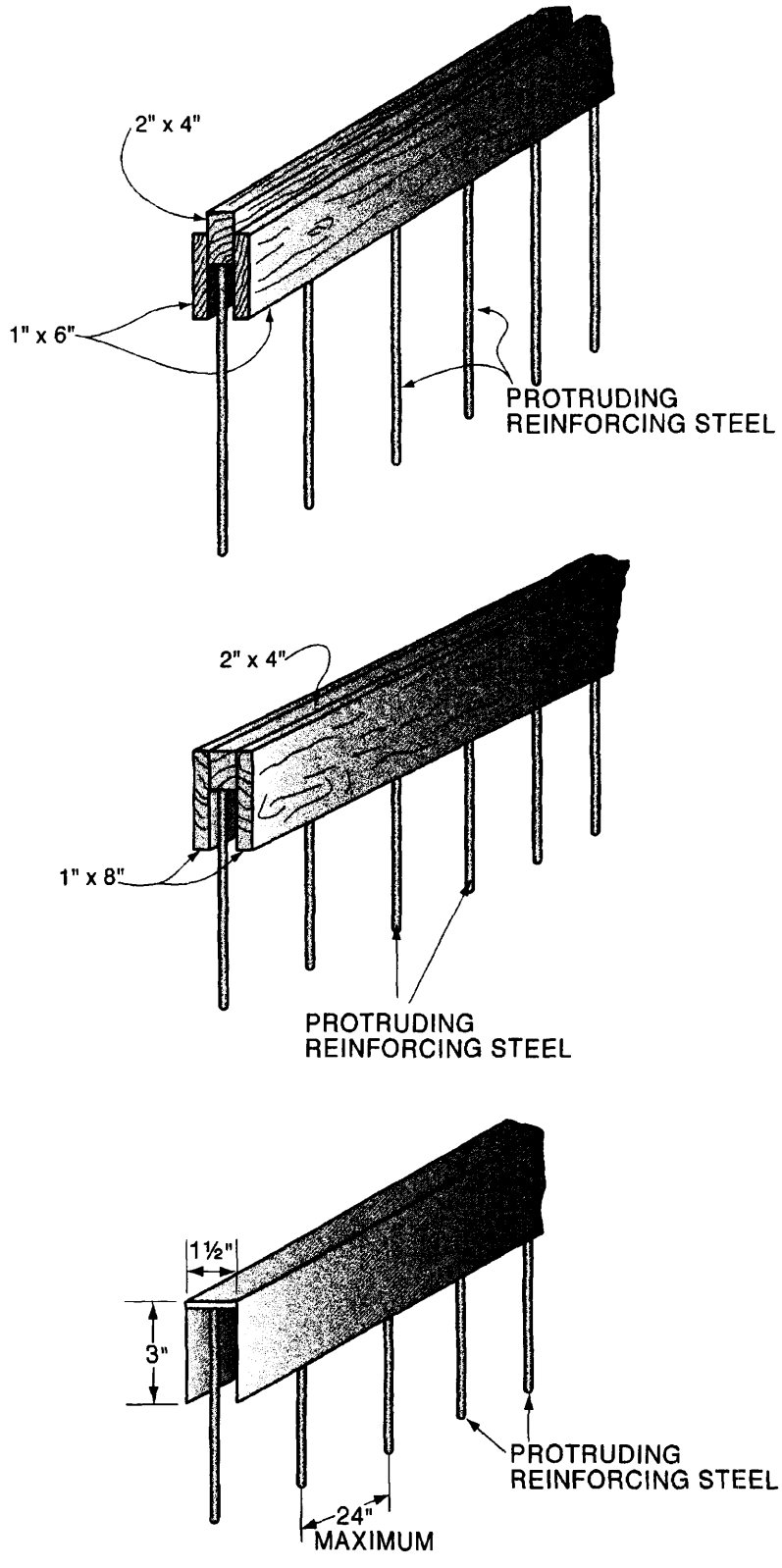
PLATE C–24e

NOTE: Authority and reference cited: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate C–24–e filed 8–23–82; effective thirtieth day thereafter (Register 82, No. 35).
2. Editorial correction of printing error (Register 82, No. 50).
3. Repealer filed 8–26–91; operative 9–25–91 (Register 92, No. 13).

PLATE C–25
PROTECTIVE TROUGHS FOR PROTRUDING
REINFORCING STEEL (Suggested)
SEE ORDER 1712




14 GAUGE STEEL TROUGH

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 2–19–75; effective thirtieth day thereafter (Register 75, No. 8).
2. Amendment filed 4–27–79; effective thirtieth day thereafter (Register 79, No. 17).
3. Amendment filed 1–30–80; effective thirtieth day thereafter (Register 80, No. 5).
4. Editorial correction (Register 80, No. 13).
5. Amendment of NOTE filed 6–21–85; effective thirtieth day thereafter (Register 85, No. 25).
6. Amendment filed 4–1–97; operative 5–1–97 (Register 97, No. 14).
7. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–26–b

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 3).
2. Repealer filed 6–26–97; operative 7–26–97 (Register 97, No. 26).

PLATE C–27

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Repealer and new Plate C–27 filed 6–26–97; operative 7–26–97 (Register 97, No. 26).
2. Transfer of Plate C–27 to section 5304 and new NOTE filed 7–11–2003; operative 8–10–2003 (Register 2003, No. 28).

PLATE C–28

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
2. Relocation and amendment of former Plate C–28 to new section 1573.1 filed 6–26–97; operative 7–26–97 (Register 97, No. 26).

PLATE C–29

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New NOTE filed 7–26–85; effective thirtieth day thereafter (Register 85, No. 30).
2. Relocation and amendment of former Plate C–29 to new section 1573.2 filed 6–26–97; operative 7–26–97 (Register 97, No. 26).

PLATE C–30
TEMPORARY POWER POLE

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 12–21–78; effective thirtieth day thereafter (Register 79, No. 1).

PLATE C–30–a
KEY TO DIAGRAM OF TEMPORARY POWER POLE ON PREVIOUS PAGE

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. Amendment of (2) filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Amendment of (2) filed 5–21–75; effective thirtieth day thereafter (Register 75, No. 21).
3. Repealer filed 12–19–78; effective thirtieth day thereafter (Register 79, No. 1).

PLATE C–30–b

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 12–9–78; effective thirtieth day thereafter (Register 79, No. 1).

PLATE C–31
ALLOWABLE CURRENT–CARRYING CAPACITY OF FLEXIBLE CORD

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 12–19–78; effective thirtieth day thereafter (Register 79, No. 1).

PLATE C–31–a
APPROVED CONFIGURATIONS FOR NONLOCKING PLUGS AND RECEPTACLES FOR GENERAL PURPOSE 60 HERTZ A.C. USE

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 12–19–78; effective thirtieth day thereafter (Register 79, No. 1).

PLATE C–31–b
APPROVED CONFIGURATIONS FOR LOCKING TYPE PLUGS AND RECEPTACLES FOR GENERAL PURPOSE 60 HERTZ A.C. USE

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. Repealer filed 12–19–78; effective thirtieth day thereafter (Register 79, No. 1).

PLATE C–31–c
OVERCURRENT PROTECTION CRITERIA

NOTE: Authority cited: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 7–12–74; effective thirtieth day thereafter (Register 74, No. 28).
2. Repealer filed 12–19–78; effective thirtieth day thereafter (Register 79, No. 1).

PLATE C–33—Plate C–35–B

HISTORY

1. Repealer of Plates C–33, C–33–A, C–33–B, C–33–C, C–33–D, C–33–E, C–33–F, C–34, C–35, C–35–A and C–35–B filed 11–12–75; effective thirtieth day thereafter (Register 75, No. 46)

APPENDIX

PLATE C–36–a
SAFE PRACTICES—HELICOPTERS

1. Do not approach or leave a helicopter while its engines are running unless in a crouched position and the pilot or pilot's designee signals that it is safe to do so.

2. Always approach and leave the helicopter in plain view of the pilot or as directed by the pilot's designee; never from the rear.

3. Approach and leave the helicopter on a level with the craft or a lower level, never from or to higher ground than that of the helicopter.

4. Wear goggles and head protection with chin strap under the chin when in the vicinity of an operating helicopter. Loose–fitting clothing likely to flap in the downwash and possibly be snagged on the hoist line shall not be worn.

5. Load all cargo and secure it to the satisfaction of the pilot or pilot's designee.

6. Do not put tag lines on sling loads without the pilot's or pilot's designee's permission and limit their numbers, their placement, and their lengths to the pilot's satisfaction.

7. Do not place explosives, flammables, or other dangerous materials on board any aircraft without the pilot's knowledge.

8. Carry all materials to or from the helicopter in a horizontal position not above waist level.

9. Do not smoke within 50 feet of a helicopter, fuel storage, or fueling operation.

10. Do not stand directly under a hovering helicopter longer than necessary to hook–up or unhook the load.

11. Always watch the helicopter, sling load, hook, or bottom end of the cable to avoid being hit.

12. Know the escape procedure at each operation site.

13. Keep landing and hovering areas clear of loose and lightweight materials.

14. Notify the person in charge of the project when erecting a suspended line, tower or other navigational hazard.

15. Turn off radio transmitter when in vicinity of explosives or explosive loading operations.

16. Passengers transported by helicopter shall be instructed to:

(A) Board and depart only on instruction from the pilot.

(B) Use seat belts during take off, flight, and landing.

(C) Do not talk unnecessarily to the pilot.

(D) Remain seated during the time you are aboard.

(E) Watch for other airborne aircraft and navigational hazards and call them to the attention of the pilot.

(F) Do not smoke unless permitted by the pilot.

17. When performing as a crew member in external operations, listen to and be familiar with the normal sounds emitted by the helicopter in flight so that you will have the earliest notice of trouble and can avoid dangerous exposure.

(18) When visibility is reduced by dust or other conditions, ground personnel shall exercise special caution to keep clear of main and stabilizing rotors.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 2–1–85; effective thirtieth day thereafter (Register 85, No. 5).
2. Amendment filed 5–1–87; operative 5–31–87 (Register 87, No. 19).

PLATE C–36–b
TEMPORARY HELICOPTER LANDING SITE (Elevated)

**Temporary Helicopter Landing Site on Buildings**

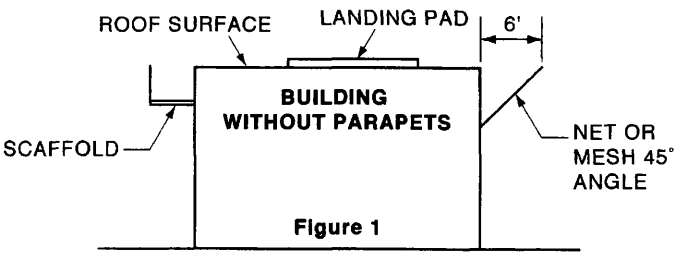



**Figure 1**

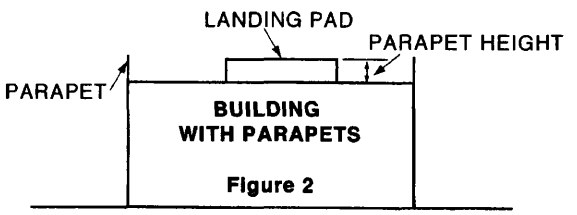



**Figure 2**

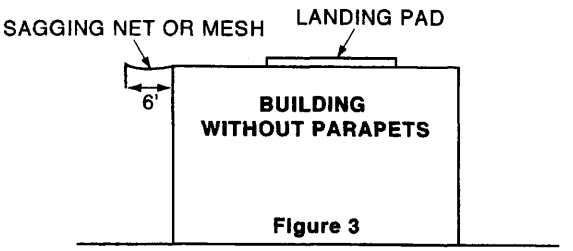



**Figure 3**

**Temporary Helicopter Landing Site On Hillsides**

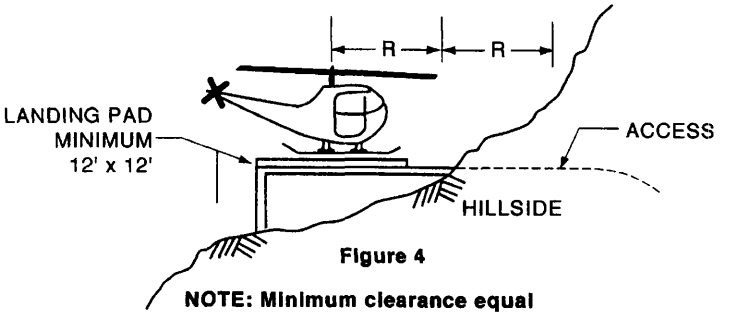



**Figure 4**

**NOTE: Minimum clearance equal to radius of largest rotor.**

PLATE C–36–b
GROUND CREW PROTECTION

**Ground Crew Protection on Slopes**

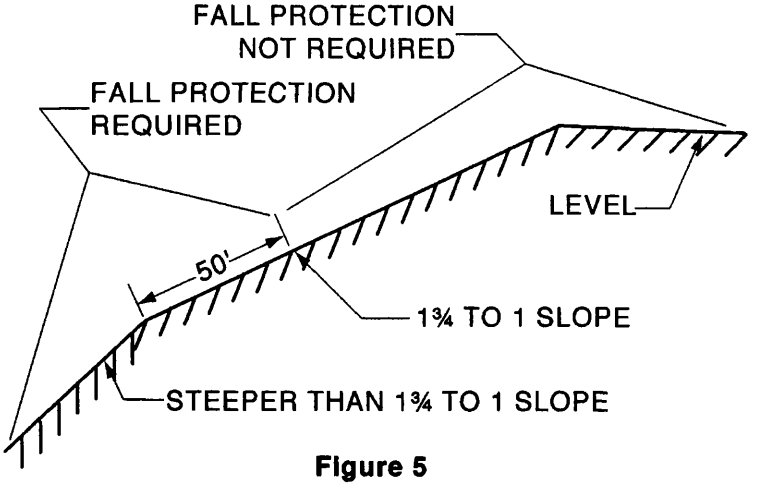



**Figure 5**

**Ground Crew Protection for Hovering Helicopter Static Electric Discharge (see §1904)**

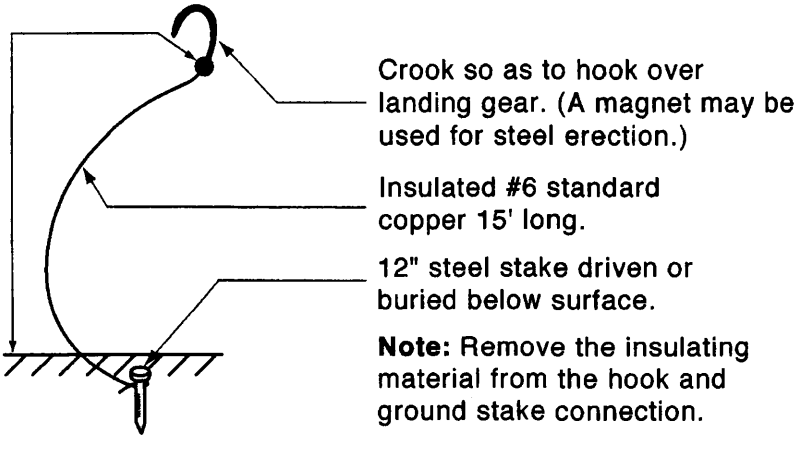



**Figure 6**

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. Amendment filed 2–1–85; effective thirtieth day thereafter (Register 85, No. 5).
2. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–36–c
HELICOPTER HAND SIGNALS

**MOVE RIGHT**



Left arm extended horizontally; right arm sweeps upward to position over head.

**HOLD-HOVER**



The signal "Hold" is executed by placing arms over head with clenched fists.

**MOVE LEFT**



Right arm extended horizontally; left arm sweeps upward to position over head.

**TAKEOFF**



Right hand behind back; left hand pointing up.

**MOVE FORWARD**



Combination of arm and hand movement in a collecting motion pulling toward body.

**LAND**



Arms crossed in front of body and pointing downward.

**MOVE REARWARD**



Hand above arm, palms out using a noticeable shoving motion.

**MOVE UPWARD**



Arms extended, palms up; arms sweeping up.

**RELEASE SLING LOAD**



Left arm held down away from body
Right arm cuts across left arm in a slashing movement from above.

**MOVE DOWNWARD**



Arms extended, palms down; arms sweeping down.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New plates C–36–a, C–36–b (Figures 1–6) and C–36–c filed 3–28–75; effective thirtieth day thereafter (Register 75, No. 13).
2. New NOTE filed 2–1–85; effective thirtieth day thereafter (Register 85, No. 5).
3. Change without regulatory effect providing more legible illustrations filed 8–4–2008 pursuant to section 100, title 1, California Code of Regulations (Register 2008, No. 32).

PLATE C–37
Approval Criteria Pole Tool Assemblies

(1) The maximum extension of the pole tool assembly shall not exceed 6 feet (183 cm) in length measured from the heel of the powder–actuated tool to the trigger mechanism on the pole.

(2) The powder–actuated tool, to which the pole tool assembly is attached, shall be only of low velocity type.

(3) The extension assembly shall be of such structural integrity as to withstand the forces involved in the use of the tool.

(4) The powder–actuated tool shall be of a type whereby either fasteners or power loads must be loaded individually.

(5) The trigger mechanism shall be attached to the assembly.

(6) Pole tool extension assemblies shall either be constructed of a dielectric* material, or those portions of the trigger mechanism and pole normally held by the operator while using the tool in the upright position shall be covered with a dielectric material sufficient to preclude the possibility of electric shock or burn caused by contact between the tool or attachments with energized wiring.

* The pole tool handle and connecting controls shall be capable of withstanding for one minute, without breakdown, the application of a 60 hertz essentially sinusoidal potential of 1000 volts + 2 x (rated voltage).

EXAMPLE: 1000 + 2(600) = 2200 volts.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

HISTORY

1. New Plate C–37 filed 10–16–84; effective thirtieth day thereafter (Register 84, No. 42).